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ONE DOLLAR



SPECIAL SECTION
1989 VIRGINIA HUNTER'S GUIDE

This is the story of how we begin to remember . . .—Paul Simon, *Graceland*.

The days are tightening up on us now. The light is losing its softness, putting an edge on shadows and hardening up colors. You need sunglasses at 7 a.m. Things smell different. It's easier to throw off the covers in the morning, to shuffle through breakfast with the breeze cooling through the blinds, through windows. Easier to stall over coffee and remember.

The doves are here. Every fall I puzzle over what it is, why the new feeling of starting over, of beginning again. As a kid I remember sniffing the air and smelling school in it. New teachers, new kids, a new room. The scent of adventure. The feeling never lasted more than about two weeks into September—but it was *there*. Now, I feel the wind for movement, for direction, for the hunt.

It's good to start off the season with doves. It brings back the hunters, brings them together again in a dusty circle on a dove field, hidden in green corn, spitting and telling stories. Last year's tales are creased and worn, wearing thin. It's time for new words that dance. People stand, lean against trees, wipe the sweat from their faces, squint and look up—waiting for it to begin.

But, after the hunt, when the wind carries the pork barbecue, the whiskey, and the women's voices across the fields, and the hunters start walking off toward their trucks for the barn at the back of the house in the half light of dusk, that's when the year really begins. The stories are resurrected in the room packed with men smelling of gunpowder, doves, and dust, stories already taking new form, new shape. "Did you see that double Stanley made? He's got a new Ruger and he can't miss."

"Yeah? Let's count his doves. Come on—"

A white-haired man leans toward them and whispers, "Count his shells, too."

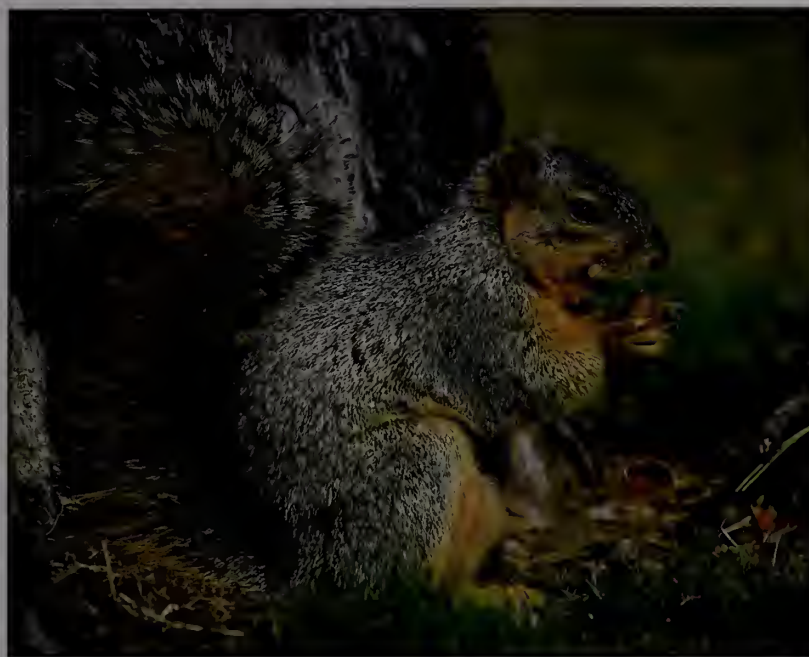
"Hey, Tom, I've got a blind down on the Mattaponi. Want to come down during the early season? I swear I'll even let you bring your dog along. He might be good for picking up decoys at the end of the day." In circles of two or three, with plastic cups in hand, rattling ice cubes, the hunts are planned, and pledges made for deer season. Kids crawl between boots and chap-covered legs after loose dogs and shell hulls. They're taking it all in.

After that, every year it'll follow without fail—come August when the weather breaks for the first time and the light gets hard on the eyes and the air cools down enough to send the memories on. The feeling arrives.

Hunting is like that. It's not the "No Trespassing" signs torn down or shot up. It's not the guy caught spotlighting fawns in fields on a dark night. It's older than all that, hunting is.

Yes, hunting has been abused as we abuse most everything we cherish. I wonder over this strangeness in our nature sometimes, but in the end, after fretting and wringing my hands about it all, I go back to the hunt, like most all of us. We just kind of give in to it all. We can't help ourselves. It's what we've been waiting for.

Joseph Campbell once said that man is not searching for meaning in life, but rather for "the experience of being alive." Come September, in the heat of the dove fields, we know what he meant. It begins again.—
Virginia Shepherd



Fox squirrel; photo by Lloyd B. Hill.

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Cover: Bobwhite; photo by Karl Maslowski
 Back cover: Shenandoah National Park, red oak grove; photo by Rob Simpson
 Inside back cover: photo by Rob Simpson

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Figure that if a falling body accelerates the way Sir Isaac Newton said it should, it took Richard Rowland's falling body just over a full second to hit the ground. Add to that another half second or so that the end of the cedar ladder splintered and sagged before it came all the way loose in his hand, and maybe a little less than a half second for Richard to kind of claw around in the air, not quite able to get another hand hold on anything, and it comes out to almost two full seconds of thinking time before the ground hit him. You can think about an awful lot of things in two seconds, especially if you get started about 18 feet off the ground and sort of think your way down; but Richard told me that the things he was thinking really couldn't be printed in a family outdoor magazine like *Virginia Wildlife*.

Richard is a good friend, a fine outdoorsman, and a careful hunter with years of experience. The crushed ankle kept him out of work for two months, and the pain was persistent for another three or four. He figures he was lucky.

My friend did what any of us might do in a moment of excitement; he neglected one of his own safety rules. He had shot a deer and had seen it go down, only to try to rise again. The terrain and vegetation prevented another quick, finishing shot, so he unloaded the round from the chamber and turned, rifle in hand, to go down the ladder. When his free hand grasped the top of the cedar post out of which the ladder was fashioned, and as he swung his weight out onto the rungs, the cedar broke abruptly and dumped him. His hunting partners carried both him and his deer out of the field.

It's easy to forget, in the urgency of the moment when game is sighted or—as was the case here—when an animal is down, that things can go suddenly, terribly wrong for human beings a dozen or more feet off the ground. All of us know that you *never* climb a tree with a gun or a bow in your hand. All of us use a line to get the unloaded gun up the tree or lower it to the ground after we're safely in place. All of us use safety belts or straps. Everybody checks his ladder or his screw-in steps,

as well as the integrity of the stand itself. But sometimes—maybe just once—we might forget. The price can be a lot higher than the one Richard paid.

sudden twisting, and no climbing trees.

The point is this: it really doesn't take long to have a very bad accident, as anybody who has been in an automobile wreck knows. One minute

Tumble-Proof Tree Stands

Keep yourself from falling on your head this hunting season—learn the techniques of putting up and maintaining a safe tree stand.

by Steve Ausband

I have a neighbor who climbed the same poplar tree every day for five days during the muzzle-loading season two years ago. Then one day he got to the stand late after having seen a nice buck in the area, and he was in a big enough hurry to climb with the gun. "I had grabbed that limb every day," he said. "This was the day it decided to break." The fall broke his back. For a while we all wondered and worried about his recovery, about the possibility of paralysis. He's back at work now and can even hunt again, but he has to be careful with the back; no lifting, no

you're doing something very routine, and the next you're groping toward an awareness that you have been seriously injured.

All the bow hunters and most of the gun hunters I know spend at least some time every deer season in tree stands. I also use them out of season for observing wildlife, and I have no doubt they would make handy platforms for wildlife photography. Tree stands are productive because animals are somewhat less likely either to see or to smell a hunter elevated 10 or 12 feet off the ground. The only real



There are a few, simple safety measures that every hunter should take when using any kind of tree stand—to prevent accidents in the making, photo by William S. Lea.

drawback is that stands can be dangerous.

Permanent tree stands are often larger, roomier, and with more secure-looking attachments to the tree than portables, and their apparent stability makes some hunters feel safe in them. They need close scrutiny at regular intervals, however, since they are susceptible to developing flaws that can cause serious injury. Many landowners dislike having stands nailed in their trees, both because the value of the trees may be lowered and because the stands are not esthetically pleasing parts of a forest. Add to this the potential for deterioration of wood and fastening over the years, and you have a good argument for the use of portables.

If you do build and use permanents, there are a few commonsense precautions that will make life less hazardous. Ladder poles made of cedar are more reliable than most others, but even they are not break-proof. Rungs should be made of treated wood or of thick pieces of cedar with the ends trimmed flat to allow the nails plenty of bite. Oak, maple, hickory, and other tough woods may bear your weight just fine for a while, but they have a way of breaking unexpectedly after just one season in the woods. If the ends of the ladder extend above the level of the stand itself, make sure they are substantial enough to bear your weight. If they are available, you will grab them for support when entering or leaving the stand. If they seem too thick or brittle, trim them off to avoid temptation.

Rails add a measure of security and comfort. Like ladder ends, however, they invite leaning on, and if the rails themselves or the nails holding them are weak, what happens next can ruin the rest of the hunting season. Since rails are often added as an afterthought, they are likely to be the weakest part of the stand—flimsy to begin with and secured only by a nail or two at either end. Stands with no rails are much safer than stands with weak ones.

A stand built in among several closely-spaced trees is probably better hidden than other types, especially if access to it is by small steps on a trunk rather than by a permanent ladder.



The safety of permanent tree stands should not be taken for granted—they should be checked every year for weakness and decay; photo by Rob Simpson.

Such a stand should be checked for loosening, however, if the trees are limber enough or exposed enough to sway in the wind. I have seen stands which have virtually pulled themselves apart because of the torque of the swaying trees among which they were nailed. Nails in moving trees have a disagreeable habit of pulling out or even twisting off, and, since the flaw is likely to be between the supports and the tree trunk, it might remain hidden from anything but a very careful, deliberate inspection. The small steps can be treacherous, too, especially in wet or icy weather.

The ladder stand, using a pair of hefty cedar logs for the ladder posts and topped by a roomy, stable platform against a tree (or trees), is probably the most comfortable of all permanent stands, and it can be installed with a bare minimum of nails driven into the tree trunk. It does tend to stand out a bit, especially in bare December woods, but I have seen enough deer under the things to believe that they get used to seeing ladders in the woods. Since a ladder stand is so easy to check for structural integrity, being stuck right out in the open against the side of a tree, and since it is often roomier than other types, it would seem to be the safest of all stands. It probably would be, too, if people didn't put flimsy rails on it, or extend the skinny ends of the ladder poles too far, or build the steps or the platform out of untreated wood.

Most falls from stands occur when the hunter is just getting into the things, or when he is getting ready to descend. Being tired, cold, or excited magnifies the danger many times. When getting ready to descend under these conditions, one should take a few minutes to compose oneself. Hurrying down a tree is a prelude to disaster.

Portable stands have some distinct advantages over permanent ones. They can be taken down in the off season, preventing both their deterioration and the aesthetic detraction of having a bunch of platforms in a nice grove of hardwoods. They can be moved fairly easily to take advantage of changes in animals' habits or to make up for an

earlier miscalculation on the part of the hunter. They do no damage to trees, and they leave no nails in trunks to ruin a saw blade. They are generally less conspicuous, both to animals and humans, than the larger permanent stands. Their major disadvantage is that many of them tend to be a bit smaller, less comfortable, and less secure feeling. They are not, however, intrinsically less safe.

I have never heard of a commercially available, properly installed, portable stand falling from its moorings or collapsing under a hunter's weight. I suppose it's possible, but I've never heard of it. I own two of the things, and they seem all but indestructible once they are properly mounted on trees. It is fairly easy to fall out of a portable, especially when one is just getting into position or getting ready to leave it, but that is a different matter altogether. This brings up the necessity of using a good safety strap—not only for keeping the hunter from just tumbling out of the stand, but also for use while he is climbing to it, descending from it, installing it, or taking it down. It takes me a little longer to loosen and adjust a strap for climbing and descending, and it occasionally gets in the way. I don't mind. I've gotten very used to the way my arms and legs fit together with the rest of me, and I think the strap helps guarantee I won't alter the arrangement of the parts.

The steps used with a portable can be of various screw-in or strap-on configurations. There is some controversy as to whether screw steps do any harm to trees by making holes for disease or insects. I've never seen any evidence of permanent damage to trees, but I sympathize with the concern. Portable steps that strap or tie on may be the way of the future. Either way, however, the small steps can be a disadvantage in that they offer a little less for the climber to grasp on his way up or down the tree. Using lots of steps helps; some steps should be above the stand for use as handholds when entering or leaving it. Screw-in steps must be installed properly, set deeply through the bark and into the tree, and positioned so that the shank is parallel

to the tree trunk and perpendicular to the ground. An angled step can bend or break under pressure.

There is nothing complicated about insuring your own safety in a tree stand. Four general rules cover virtually every situation for the hunter, photographer, or wildlife observer:

1. Check the condition of the stand and the steps frequently. This means more than once before the beginning of the season. In permanent stands, check for loose boards, nails that have begun to pull, soft places in the wood, splitting, and excessive play in rails and ladder tops. In portables and climbing stands, check for placement of steps, cracks or bends in the metal, and loosening of bolts and other fasteners. Portables, especially climbing stands, sometimes develop too much lateral sway. Usually tightening up the bolts and readjusting the support bar will fix this. If it does not, and if the stand still has excessive play, discard it and buy yourself a new one. The price of the most expensive portable stand is considerably less than the cost of a few hours with an orthopedic surgeon or a neurologist.

2. Use a line for raising and lowering the bow, camera, lunch, rifle, or whatever you want in the tree with you. (I had written in a reminder here about being sure that the gun was unloaded before climbing the tree, but my wife, who was reading over my shoulder, commented that anybody dumb enough to climb a tree with a round in the gun's chamber is unlikely to read magazine articles about safety. I imagine she's right.)

3. Use a safety strap. If you don't have one, make or buy one. Anything, even a length of rope, is better than nothing. The best straps are made out of wide nylon webbing, and they can be adjusted at both ends to fit around the tree and around the hunter. Besides insuring safety, they allow the hunter to shift his weight occasionally for a greater measure of comfort, and they will support his weight if he has to lean away from the trunk to make a difficult shot.

4. Take your time. Everybody knows that deer are challenging to hunt or photograph or even observe in

the woods. But think back. How many did you see last year? Less than a dozen? Two dozen? More than that? I am lucky enough to spend a good bit of time in the woods, and so I get to see a fair number of animals every season. I don't want to risk my neck foolishly trying to see one more. I know that when I'm cold or hurried or tired I make mistakes more easily. The only cure is to be very deliberate, to move slowly and carefully, watching and thinking about procedure and routine. As Richard Rowland told me, getting down quickly from even a very tall stand is easy, but it's not worth the trouble.

Some of the most enjoyable times I spend every year is in a tree. I begin before dawn, moving toward the stand with the aid of a small flashlight, keeping the wind direction in mind even as I plan which way to get there. I stop and listen when I get to the tree, tie the bow or rifle onto the line, adjust the safety strap, and slowly climb into position. I check the strap again, then pull up the line and settle down to watch the world wake up.

The small birds, sparrows and such, will get started first, flitting around nervously in the limbs and sometimes lighting right in the stand with me. Then a little later the squirrels; I can sometimes hear their claws on the trunks as they descend, and then they will dig in the newly-fallen leaves, making more noise than any animal their size should. Sometimes a raccoon will come ambling along, returning from a nightly outing. I see quail, hawks, occasionally a turkey. Deer slip like cats, like morning fog along the edges of the woods, never far from thick cover. It all fits together: the sounds, the sights, the smell of fallen leaves and autumn earth, even the morning chill in the air. That's all very important to me, but if I fall out of the tree and hurt myself, I may have to give it up for the season—or longer. Richard tells me that nothing, absolutely nothing on daytime TV can compete with it. I don't want to find out. □

Steve Ausband is the chairman of the English Department of Averett College in Danville, and is a frequent contributor to Virginia Wildlife.



September Squirrels

Hunting squirrels in September has some hidden advantages, and not all of them have to do with bushytails.

by Bruce Ingram

The tiny crimson slivers were drifting down through the limbs of the tree and landing near my feet. Looking up through the boughs of the massive white oak, I began searching for the source of the red cuttings. After 10 minutes of peering into the inner reaches of the ancient hardwood, I finally glimpsed a gray tail dangling over a slightly quivering limb as the bright gnawings continued to fall.

Dogwood berries, I thought. The squirrel's eating dogwood berries 50 feet up in an oak tree that is full of acorns. There's just no figuring. Another 10 minutes passed before I finally gave up on the bushytail. Either it had spotted me or it was just so glutted with food that it had fallen into a mid-afternoon daze. Whichever, the gray wasn't going to be stirring anytime soon and it was time for me to be moving on. After all, there were probably more silvertails to see and more things to learn during my stay in the September woods.

There is so much more to early season squirrel hunting in Virginia than just sitting in a hickory grove and waiting for a gray or fox squirrel to show up. There are alternative ways to hunt these animals, other foods to consider besides hickories, and—most definitely—much that can be learned at this time of year toward helping us become better woodsmen.

There's no doubt that staking out a

Opposite: Fox squirrel; photo by Lloyd B. Hill.

stand of mockernut hickories which has fresh cuttings about is the outstanding manner to pursue early season squirrels. However, an often overlooked way to hunt at this time that can really add bushytails—plus bass and other game fish—to our game bag—and creel—is to wade a stream.

A good friend clued me in on this approach to squirrel hunting several years ago and I have since become an enthusiastic convert. In order to be able to fish and hunt at the same time, several things have to be done. First, you must have a strap attached to your shotgun in order that the gun can be placed over your shoulder while you are making a cast.

Second, only relatively shallow streams that have a mild flow should be "wade-hunted." A roaring river or a deep one should be avoided. A slip or a fall when you have a gun over your shoulder could be a serious mishap. and if you are to keep your "powder dry," it would be foolish to go muck-ing about through deep, swift pools.

In September, many Old Dominion streams are still quite warm and therefore wadable without hip boots. The weather has cooled at least somewhat, though, making the fish much more

active and catchable than they were in the summer. Yet, if we concentrate on fishing, we miss out on the opening of the squirrel season. The obvious solution is to do both at the same time.

I like to hug a stream's shoreline while wade-hunting for several reasons. Being close to the overhanging foliage and plants of the shoreline makes me less visible to both the silvertails and the fish. I can make long casts to likely looking pools, riffle areas, and eddies without spooking the fish. This is an important consideration in early fall because our waterways are typically low and clear at this time of year.

Plus, blending in with the environment also enables me to sneak up closer on the squirrels. I prefer a 20-gauge shotgun for September squirrels, making it imperative to maneuver within 30 yards or less of the animals. Many times during the heat of early fall, squirrels will congregate along streams to drink and take advantage of the cooler temperatures there. A stealthy approach can allow you to get right under the animal as they recline on limbs of trees that grow along the shore. However, you must have the landowner's permission to hunt the stream banks, *before* you decide to take up this productive kind of hunting.

The question arises as to what to do with a fishing rod when a squirrel comes within range. My wade-hunting buddy has solved this problem by

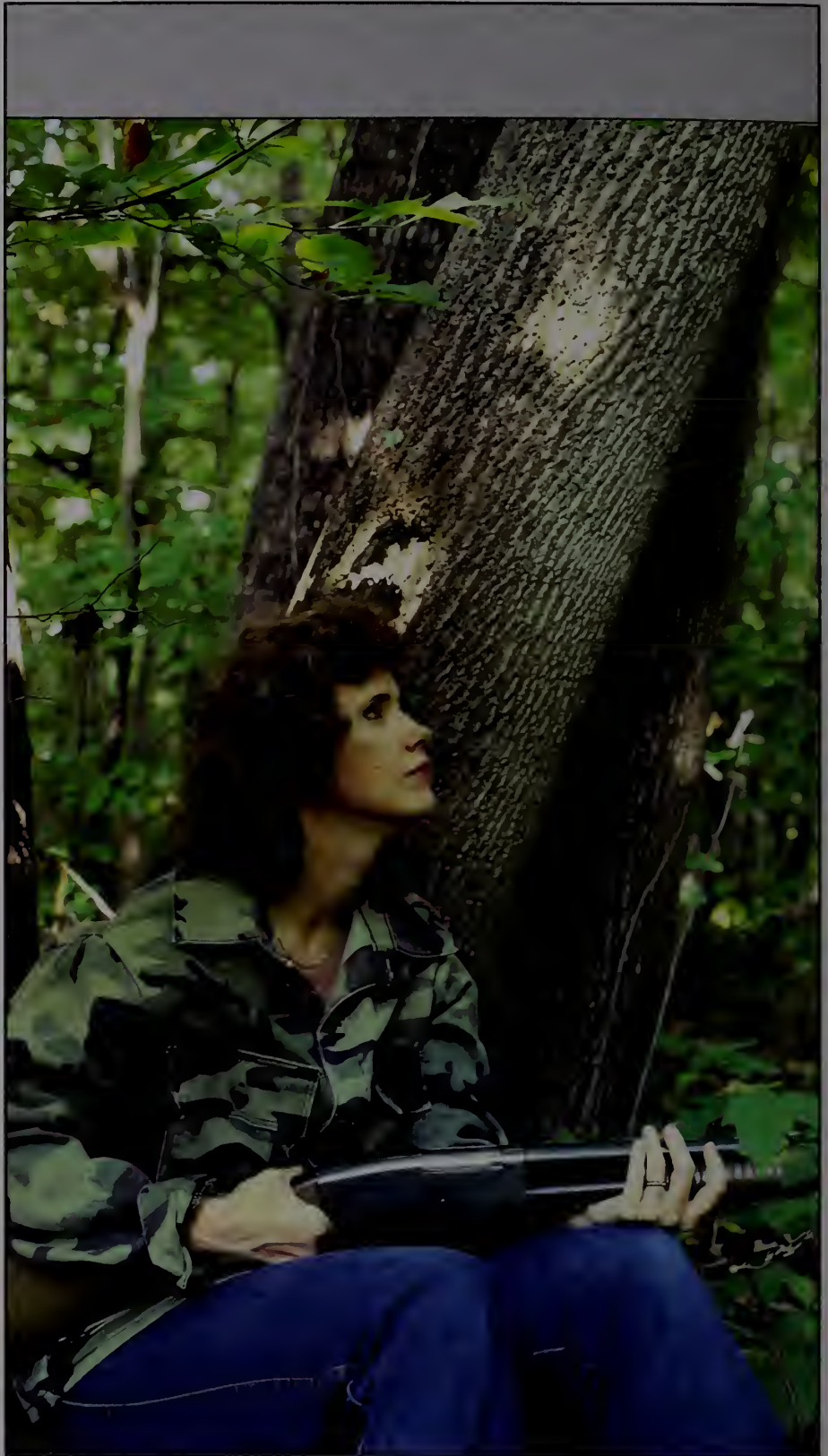
using a pack rod that quickly and easily folds up. My solution is to merely lay my fishing rod on the bank.

Another version of wade-hunting is "canoe-hunting" and that also is an underrated way to take September squirrels. Even if you do not enjoy fishing, a canoe can be a fine way to cover lots of likely looking squirrel habitat as well as to enjoy being out on the water. Once you come up on a concentration of squirrels or a possible feeding area, it is a simple matter to beach the canoe. As in wade-hunting, it is best to avoid swift, deep streams when hunting from a canoe. You may find yourself swept by promising sites too quickly, and worse still, a downed squirrel could fall into water so deep that it could not be retrieved.

And finally, if you do not have access to a canoe and do not want to wade a stream, consider still hunting along a favorite waterway. Even if there are no hickory trees present, there are usually plenty of food sources which will attract squirrels to the streamside.

As there are alternative ways to go after early season squirrels, there are also numerous food sources besides hickories that will attract them. For example, one of my favorite squirrel stands is a fencerow that has a half dozen or so walnut trees along it. Checking out this fencerow a few days before the season opener can tell me whether or not it will be a good bet when the season comes in. If there are plenty of freshly cut walnut hulls present, then obviously this locale is worth considering, regardless of whether I spy any squirrels or not. Black walnuts usually do not ripen in my home area of southwest Virginia until early October. But squirrels will begin feeding on them earlier if the mockernut hickory crop fails. Fox squirrels especially like the more open habitat that is characteristic of fencerows.

Another alternative food source is black gum berries. Several years ago when we had a hard mast failure, the few concentrations of squirrels that I found were in black gum trees. In addition to black gum berries, another so-called soft mast favorite of squirrels is



September hunting for squirrels is limited only by your imagination—you can sit under a mockernut hickory or you can wade a stream for them—the woods are open to you in September; photo by Bruce Ingram.

"Even if you are not a squirrel hunting enthusiast—there is a great deal that can be learned from squirrels that can help us later in the season."



sumac. Again, several years ago when we had a hard mast crop failure, I found quite a few bushytails munching on the red fruits of staghorn sumacs. Black gum and sumac trees are definitely not reliable squirrel attractors year after year. But they are worth checking out when you are scouting before the season begins or when you can't find squirrels in the hickories.

Other food items I have seen squirrels consuming in September include: tulip popular seeds, apples, and the unripe acorns of white oaks. And by no means are these the only menu items that gray and fox squirrels will dine on at this season. A Virginia Game Department biologist once told me that he knew of precious few wild nuts and berries that squirrels wouldn't devour if the situation so warranted, and I echo that statement.

Even if you are not a squirrel hunting enthusiast—there is a great deal that can be learned from squirrels that can help us later in the season. The most obvious plus is that by going afield during September we can at least get some idea of the deer population on a certain parcel of land.

For example, last September, I accidentally jumped a nice six-point buck while squirrel hunting on a favorite piece of land in Botetourt County. When the opener of the deer firearms season arrived in November, I decided to pursue that particular buck. It would make for great reading to say that I actually bagged that animal, but I did not. However, I did place my sights on him on opening day, but was unable to shoot because I could not get a clear shot. Two other times during the two-week gun season, I spotted that particular buck, but each time a killing shot was not available. The point that is relevant, however, is that I knew that deer was present because of being afield for early season silvertails. And this September, I plan to check out that same stand of woods for squirrels—and for that buck which will perhaps have even better headgear.

In addition to whitetails, another game animal that squirrels can lead us to is the wild turkey. I have a good friend who freely admits that the only

reason he goes hunting for squirrels during the early season is so that he can check out the local turkey population in anticipation of the fall season that begins in early November. That friend rarely ever bothers to shoot squirrels, being merely content to observe what foods they are eating, and to survey which forage items will likely be available for turkeys later in the fall. Turkeys relish such food items as white and red oak acorns—as do squirrels—and finding stands of those trees which are bearing heavily can be a very important discovery in increasing our chances of taking a bird. A nice gobbler I killed last year was taken because I first realized the "turkey potential" of a certain piece of woods while hunting for early season squirrels.

One last reason to be afield for September bushytails is that these animals can definitely help make us better woodsmen. In addition to helping us better understand what food sources are present, squirrels can enable us to hone our hunting techniques. The game animal that many, if not most Virginian hunters first pursued was the squirrel. The basic hunting strategies that we use for deer, such as still and stand hunting, were first employed for silvertails. One of the most enjoyable early season outings I experienced involved the time I spent half an hour sneaking up on a lone gray squirrel gnawing on nuts high in a hickory tree. When I was finally able to get close enough to the animal to squeeze off a killing shot, I felt a great sense of accomplishment. The skills learned and improved upon early in the fall can really make us better hunters later in the fall. I would hate to enter the woods in November without having gotten a "feel" for things in September.

This game animal teaches us much about hunting and the woods. And, squirrels can be found in other places besides hickories and can be taken by other ways besides stand hunting. This September, rediscover—or discover—the pleasure of pursuing early season squirrels. □

Bruce Ingram is the Virginia editor for Outdoor Life magazine and a frequent contributor to Virginia Wildlife.

Sporting Clays:

A brand-new shooting sports facility will open up in central Virginia on September 24th.

In an effort to encourage the construction of badly needed facilities for the shooting public, the Virginia Department of Game and Inland Fisheries has constructed a model sporting clays range at Amelia Wildlife Management Area, 30 miles outside of Richmond.

Encompassing 105 acres near the lake on the management area, the course consists of 10 stations designed to simulate actual hunting situations for the sportsman. With clay bird targets strategically thrown in imitation of flying ducks, running rabbits, or flushing quail and grouse against a natural background of trees, brush, fields, or marsh, the shooter has five shots at each station. The sport is fun, challenging, and hones the hunting skills and reflexes of sportsmen, while providing entertainment in a natural setting for all ages.

It is hoped that this range will provide a model for rural landowners seeking innovative ways to supplement their farm income, while providing a badly needed service for the shooting public. We encourage entrepreneurs to take a look at our facility and learn how sporting clays can become a lucrative business on their own property.

In conjunction with our celebration of National Hunting and Fishing Day, the Game Department cordially invites you to come out and see for yourself how our new sporting clays course operates on Sunday, September 24, while enjoying the other outdoor sporting activities we have planned for the day. Bring your whole family for a terrific afternoon from noon till 5—we'll be looking for you!

The Department's first sporting clays course will open for the public on September 24th at Amelia Wildlife Management Area. Come join us—for the fun of it!



Above: Aerial view: Site of sporting clays range, Amelia WMA; staff photo. Left: Sporting clays gives the hunter a means to hone his or her skills in a simulated hunting experience; staff photo.

Here At Last



Sporting clays is a fun sport, and provides an enjoyable way for the whole family to develop shooting skills; photo by Spike Knuth.

What to Bring:

- Shotgun (minimum 2 shot capability is recommended)
- 50 shotgun shells (shot size not to exceed #7½)
- 10 steel shotgun shells (shot size not to exceed #4) if you wish to shoot the over-water stations
- hearing protection (earplug type are recommended)
- safety glasses.

Restrictions: *Shotguns and ammunition may be inspected for safety by Department personnel.

*All shotguns must be unloaded with the action open or unloaded and cased at all times except when preparing to shoot at a designated shooting station.

*Shotguns are to be left in vehicles until after checking in at contact station.

Hours of Operation:

Friday 9:00 AM - 5:00 PM
Saturday 9:00 AM - 5:00 PM
Sunday 1:00 PM - 5:00 PM

Reservations: Reservations are required and will be made on a first-come, first-served basis. To make a reservation, call the Game Department at 1-800-252-7717 or 804-367-1000.

The sporting clays facility at Amelia Wildlife Management Area has been designed as family-oriented recreation. In addition to sporting clays, good fishing can be enjoyed at the nearby lake and picnicking is encouraged. A current fishing license for each angler, however, is required.

For additional information, contact the Virginia Department of Game and Inland Fisheries, 4010 West Broad Street, Richmond, VA 23230-1104, 1-800-252-7717 or 804-367-1000. □



Tracking the Timberdoodle

by Kurt Buhlmann & Peter Tango

We had just about crept up on top of the little bird and still we couldn't see it. Its mottled brown and black plumage helped it blend in perfectly with the oak leaves on the forest floor. We looked at each other and shrugged; it had to be right in front of us because the radio receiver was clicking away so loud it threatened to deafen us. We peered harder through the tangle of greenbrier and suddenly there was an explosive pattering of wings as the bird blasted out of the protective cover within an arm's reach away.

We had located our first radio-tagged American woodcock. Also known as the "timberdoodle," its scientific name reveals its favored haunts—*Philohela minor* means, "little lover of swamps and bogs."

We listened as the radio signal faded, knowing that we'd be challenged to find that timberdoodle again and pleased in knowing the bird was alive and behaving normally after being fitted with a tiny radio transmitter. Such was the scene that occurred several times between December 1988 and February 1989 while we were studying the wintering ecology of woodcock on the Eastern Shore of Virginia.

For those unfamiliar with this unusual little bird, let us begin by mentioning that it is a member of the shorebird family. This group also includes sandpipers, snipes, and plovers. However, unlike those cousins, the woodcock somewhere along its evolutionary course decided to leave the coastal beach, dunes, and bays and move into the forests. Woodcocks breed from Canada to north Florida and west to Texas, but their highest breeding densities are north in the New England states and eastern Canada. It is there that woodcocks breed in grassy openings or clearings, dubbed

Woodcock populations in the eastern United States have been on the decline. Virginia biologists are doing their best to find out why.

Opposite: Woodcock; photo by Lynda Richardson.

"singing grounds," within forests and forest edges. The males do an elaborate ground and aerial display as part of their courtship rituals. First they bob and "peent" (peenting sounds similar to the sound a nighthawk makes). Then they blast off from the ground, spiraling upward to a certain height, and then float back down with twittering wings, touching down in the place they left, near the female, as if to say, "How 'bout that, you impressed?" In Virginia, some breeding occurs and woodcocks will often begin their breeding displays here on warm evenings in February before heading north.

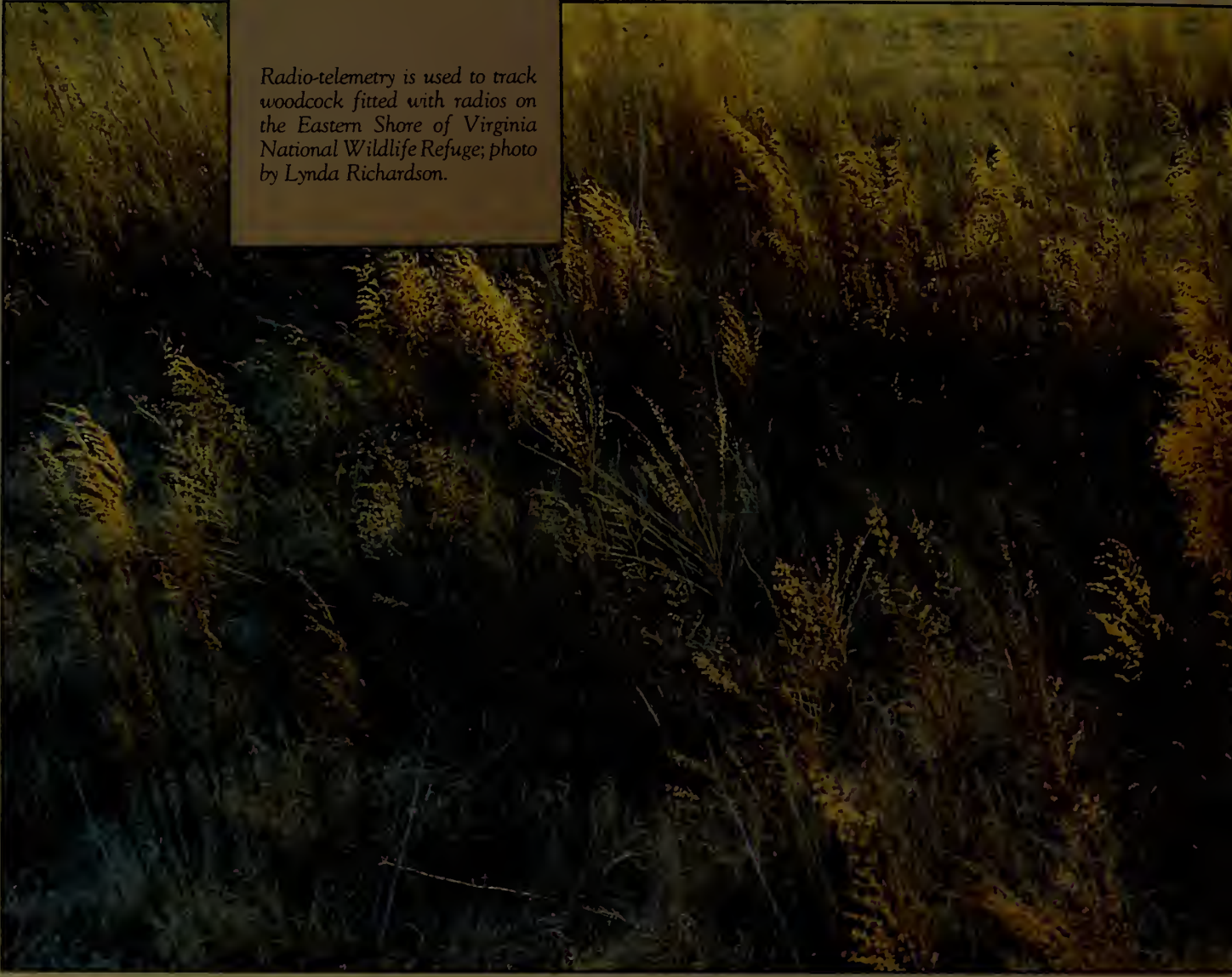
However, as the cooler autumn weather approaches, woodcocks begin a migration south to warmer climes. They feed nearly exclusively on earthworms, probing for them in soft soil with their long bills. Wintering areas must allow them access to this food supply.

For reasons which are not completely understood, woodcock populations in the eastern United States have been on a decline for the past decade or so. Most certainly, urbanization and resulting habitat fragmentation are partially responsible. Surveys of the singing grounds have indicated a yearly decline of about two percent. The Cape Charles, Virginia area represents one of three important winter concentration sites on the Eastern Flyway. Thus, this presented an ideal situation to conduct research on this little shorebird whose winter ecology

is poorly understood.

About the second half of each November, large numbers of woodcocks have been observed and many are banded when they pass through Cape May in southern New Jersey. (Cape May is well-known by birders for its incredible diversity of migrating songbirds, raptors, and others, but few realize that the southern tip of the Delmarva Peninsula rivals, if not exceeds Cape May.) Most of the birds fly over the Delaware Bay and work their way down the Delmarva Peninsula. Two winters ago, personnel at the Eastern Shore of Virginia National Wildlife Refuge observed large congregations of woodcocks on lawns during a cold snap in early January. During a two-week period they banded 204 woodcocks. The birds at that time seemed stressed and were easily captured. Body weights were below average. The air temperatures were also persistently in the teens and low 20s. Questions were asked at the time, and it was postulated that woodcocks from farther north on the Delmarva Peninsula moved south when the cold front hit, but upon reaching the bottom of the Peninsula were hesitant to cross the Chesapeake Bay. These observations prompted the U.S. Fish and Wildlife Service (USFWS), the Virginia Department of Game and Inland Fisheries (VDGIF), and the Department of Fisheries and Wildlife Sciences at Virginia Polytechnic Institute and State University (VPI&SU) to propose a study for the following winter. Objectives of the study were to find out if the Eastern Shore represented good wintering habitat for woodcock and if they were staying the entire winter, what type of habitat was important, and what factors were affecting winter survival.

We started work on the project in early December 1988 and began band-



Radio-telemetry is used to track woodcock fitted with radios on the Eastern Shore of Virginia National Wildlife Refuge; photo by Lynda Richardson.

ing timberdoodles on the Eastern Shore of Virginia National Wildlife Refuge. To accomplish this task, we rigged up a Jeep with spotlights and net holders. One of us would ride on the hood while the other drove and bumped us through old fields at night. When a woodcock was spotted in the short grass, it was blinded by spotlights while one of us crept around and dropped a dip-net over it. Usually it worked, especially after a little practice. Sometimes it didn't, particularly on moonlit nights when the birds could detect our shadows.

We weighed all the birds we captured and aged them by looking at patterns on their flight feathers. We also measured the length of their bills (females are longer) and that helped

determine their sex. Besides a USFWS leg band, we attached a reflective color band to the other leg. We changed colors every 10 days. By observing a color-banded bird in the air with a spotlight, we could tell if the bird had been banded before and for approximately how long it had been in the area.

On any given day the research tasks of a wildlife biologist can be as diverse as Mother Nature herself. Knowing that woodcock eat earthworms, we decided to dig for earthworms in different habitats, such as soybean fields, wooded swamps, and loblolly pine stands. For the next several days, the staff of the Wildlife Refuge just shook their heads as they watched us spend hours picking through bags of dirt.

In order to discover where the woodcocks were spending the daylight hours, we used two different methods. First we blazed transects through different types of forest and field habitats. We learned to respect the thick coastal plain vegetation. The harder we seemed to hack away at tangles of greenbrier that blocked our way, the harder the prickly bush seemed to fight back. However, we discovered that the greenbrier provides a protective home for woodcock. We hiked our transects at various times of the day and recorded the number of woodcock we flushed. Occasionally, we hiked the transects at night and on those surveys we're sure the woodcocks recorded how many times we jumped as they blasted out from under



our feet in the dark. The decision on whether or not we enjoyed this aspect of the research is still being debated; what is better understood are the different types of habitat that woodcock like to use during day and night on the Eastern Shore.

We also utilized radio-telemetry to help us determine the habitat use of individual woodcocks and we discovered that the woodcocks on the Eastern Shore weren't just passing through to places farther south; they were setting up their own winter home ranges and remaining there.

One male would predictably spend his days under a small fire cherry tree in brush at the edge of a field, three-quarters of a mile north of the Wildlife Refuge. At dusk he would fly down to

the Refuge and spend the night roosting and foraging in the fields for earthworms. At the crack of dawn we could hear his radio signal disappear to the north. Field checking that day would find him back under his fire cherry tree again. Generally, the females seemed to move less than the males and often spent several days in their woodlots without coming out to the fields at night. We only had four radio-tagged birds, so this trend might change with a bigger sample. During this winter's study, however, we found that the majority of woodcocks we banded stayed on the Wildlife Refuge and adjoining properties.

During the day, woodcocks could most often be found in wooded thickets, such as mixed pine-hardwood

forest with greenbrier and honeysuckle understories. We found that they avoided pure pine stands that lacked any ground cover. True to their scientific name their favorite haunts included lowland, wooded swamp edges. As we are all finding out these days, those "no-good swamps" are our most important habitats for many wildlife species, game and nongame.

At night, the woodcocks we tracked often remained in their daytime habitat, but also visited open habitats. Old fields with mowed strips seemed to be favorites. Freshly plowed fields and untilled soybean stubble and winter wheat seemed to be avoided. Quite possibly, the risk of being captured by a predator, namely an owl, in these agricultural areas with little or no

*Woodcocks are secretive birds,
hard to find in daylight under the
best circumstances; photo by Steve
Maslowski.*



1989 VIRGINIA HUNTER'S GUIDE



Licenses Required

If you hunt, you must have a valid license. Exceptions to this are (1) Landowners and tenants who live on the land they rent and who have their landlord's *written permission*. (2) Virginia residents 65 years of age or older who hunt on private property in the county of their residence.

What licenses you may need depends upon what, where and even how you hunt. A *basic* resident or non-resident license is required of all hunters and is valid for hunting all upland game. If you want to hunt deer, bear and turkey, an *additional* license is required. A National Forest permit (stamp) is needed to hunt on National Forest land and a similar stamp is required to hunt the Piedmont State Forests. A special archery license is required to hunt during special seasons open for bowhunting only. Some western counties require a game damage stamp to hunt deer or bear within their respective boundaries. These are

issued by the clerks of the court in counties where they are required. A federal migratory waterfowl stamp is required for ducks or geese and is available at local post offices. A voluntary state waterfowl stamp is also available for \$5, the proceeds from which will be used for habitat acquisition and restoration, and waterfowl research. A blind license must be displayed on both stationary and floating blinds in, or on the shores, of public waters east of Interstate 95 except in the Eastern Shore counties. Consult the Game Law Summary for particular information.

A license year is from July 1-June 30. Licenses may be obtained from the clerks of most courts and from authorized Department agents conveniently located throughout the state. Requirement clarification may be obtained from the Virginia Department of Game and Inland Fisheries, Box 11104, Richmond, VA 23230-1104. Phone

(804) 367-1000, or the toll free number 1-800-252-7717.

Fees

Lifetime resident license hunt and fish (does not include big game license or any other supplemental licenses.)

..... \$250.00 each
County or city resident to hunt in county or city of residence only

..... 5.00
State resident to hunt statewide

..... 12.00

State resident junior to hunt statewide (15 years and under) ... 7.50

Nonresident to hunt statewide

..... 60.00

State nonresident 3-day trip to hunt

..... 30.00

State resident big game license to hunt deer, bear and turkey statewide required in addition to county or state hunting license (holders of senior citizen license exempted)

..... 12.00

State resident junior big game license to hunt deer, bear and turkey statewide (15 years and under) ... 7.50

State resident archery license to hunt statewide 12.00

Nonresident big game license to hunt deer, bear, and turkey statewide, required in addition to hunting license 60.00

Nonresident archery license to hunt statewide 25.00

Special stamp to hunt deer, and bear in Alleghany, Craig, Floyd, Grayson, Highland, Rockbridge, Russell, Smyth, Tazewell, Washington, and Wythe counties, in addition to other licenses, and sold only by the clerks of court of those counties (holders of senior citizen license exempted.) 1.00

Nonresident special stamp in Russell county 1.00

Nonresident special stamp in Alleghany, Craig, Floyd, Grayson, Highland, Rockbridge, Smyth, Tazewell, Washington and Wythe counties 5.00

Senior citizen license to hunt 1.00

Senior citizen license to trap 1.00

County or city resident to trap in county or city of residence only 10.00

State resident to trap statewide 35.00

National forest permit (stamp) to hunt, fish or trap on national forests, required in addition to hunting licenses (holders of senior citizen license exempted) 3.00

Permit to hunt or trap on Appomattox, Buckingham, Cumberland, Prince Edward-Gallion and Pocahontas State Forest (sold by the Division of Forestry) may be obtained from Forest Headquarters or clerk of court in local counties 5.00

Federal migratory bird hunting stamp to take migratory waterfowl, required of persons 16 years of age and over in addition to hunting licenses and sold at U.S. Post Offices 10.00

Virginia migratory waterfowl stamp (voluntary) 5.00

Nonresident to hunt on shooting preserves only obtainable in counties in which preserves are located 12.00

Hunting Laws

Hunter Education

All first-time hunters and anyone from the ages of 12 to 15 years old will have to demonstrate that they have successfully completed an approved hunter education course before they can buy a hunting license. Persons 16 years old or over will be exempted if they have held a hunting license in prior years. Virginia recognizes all other states' and countries' hunter education programs. For convenience, current licensed hunters should save their old licenses until they buy their new ones. For information on hunter safety courses in your area, phone (804) 367-1000 or write to: Hunter Safety Courses, Department of Game and Inland Fisheries, P.O. Box 11104, Richmond, VA 23230-1104.

Hunter Education Training Sergeant

Phone Numbers

District 1

Rex Hill, Powhatan Office,
(804) 598-3706

District 2

Mike Ashworth, Vinton Office
(703) 938-7704

District 3

Harry Street, III, Marion Office
(703) 783-4860

District 4

Jess Sager, Staunton Office
(703) 332-9210

District 5

Randy Grauer, Fredericksburg Office
(703) 899-4169

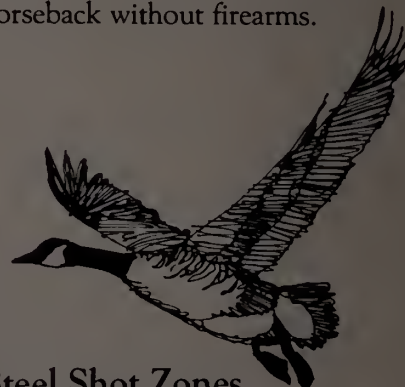
District 6

Diane Thompson, Deep Creek Office,
(804) 683-2868

Blaze Orange Required

Every hunter or person accompanying a hunter during a firearms deer season shall wear a blaze orange hat or blaze orange upper body clothing that is visible from 360 degrees or display at least 100 square inches of solid blaze orange material at shoulder level within body reach and visible from 360 degrees. Blaze orange is not required during the special muzzle loading season or during spring gobbler season. Fall turkey hunters will be required to wear blaze orange during that part of the fall turkey season that falls within

the firearms deer season. Those not required to wear blaze orange are: waterfowl hunters who hunt from stationary or floating blinds, over decoys, in marshes and swamps, or from a boat or other floating conveyance; individuals participating in hunting dog field trials and fox hunters on horseback without firearms.



Steel Shot Zones

Effective with the 1989-90 waterfowl hunting season, steel shot is now required in King William, Mathews, Middlesex, Northumberland, and Westmoreland counties. The following already have steel shot zones in place: Accomack, Charles City, Gloucester, James City, New Kent, and York counties and in the cities of Chesapeake, Hampton, Newport News, Norfolk, Poquoson, Portsmouth, Virginia Beach, and Williamsburg. Additional counties will be phased into the steel shot only zones next year through 1991. Effective with the 1991-92 waterfowl hunting season, steel shot will be required statewide for waterfowl hunting.

Hunting Seasons

Hunting seasons and bag limits are set by the Game Department on a two-year basis as changes in game habitat conditions, game populations, hunting pressure, and other factors dictate. In some cases, counties have adopted local ordinances relating to the use of rifles and shotgun slugs, firearms safety zones, and hunting in public places (such as along roads). It is crucial to refer to the hunting regulations for these county differences.

The hunting regulations are brought up-to-date and published each year around the first of July. They are distributed through license agents and sporting goods outlets throughout the state.

Where to Hunt

Finding good places to hunt in Virginia requires planning. Simply traveling the highways and byways until you see unposted land is not the right way to hunt at all!

No privately owned land, posted or not, is open to hunting without first obtaining permission. Written permission is required on posted land and verbal permission in all other cases. Posted land, in addition to signs, may be recognized by silver or aluminum painted stripes on trees. Public hunting lands (state and federal) are also available, as well as lands managed by private timber companies. Below is a description of the public hunting lands available in Virginia.

National Forests

The George Washington and Jefferson National Forests provide the largest amount of land open to the general public for hunting in Virginia. Most of the 1.5 million acres of the National Forests is open to public hunting and camping unless specifically designated closed. An annual \$3 stamp is required to hunt or fish on the National Forests. The stamp can be purchased at most outlets that sell hunting licenses. Hunting regulations, seasons and bag limits conform with state and county regulations. Individual Ranger District maps may be obtained at any Forest Service Office for \$2 each. Information can be obtained from:

George Washington National Forest Headquarters, Harrison Plaza, Harrisonburg, VA 22801, phone (703) 433-2491; Ranger District Offices in Bridgewater, Buena Vista, Covington, Edinburg, Hot Springs and Staunton.

Jefferson National Forest Headquarters, Federal Building, 210 Franklin Road, SW, Roanoke, VA 24001, phone (703) 982-6270; Ranger District Offices in Blacksburg, Wise, Natural Bridge Station, Marion, New Castle and Wytheville.

Game Department Public Hunting Lands

The Department of Game and Inland Fisheries owns approximately 176,000 acres of land in Virginia purchased with hunter license dollars and open to

public hunting with a minimum of restrictions. With the exception of the daily blind permits on waterfowl areas at Back Bay and Hog Island, there is no charge for hunting on these areas.

Hunting seasons and bag limits on Department areas usually conform to those for the surrounding county. Most are open for the early archery seasons. Dove hunting is permitted during the regular open season on Wednesdays and Saturdays only. Hunter access roads on Department lands normally open to motor vehicles will be open as indicated (weather permitting):

West of the Blue Ridge: 1st Saturday in October-2nd Saturday in February and 1st Saturday in April to 3rd Saturday in May.

East of the Blue Ridge: 1st Saturday in October-2nd Saturday in February and 1st Saturday in April to 3rd Saturday in May.

Foot travel is invited on roads closed to motor vehicles.

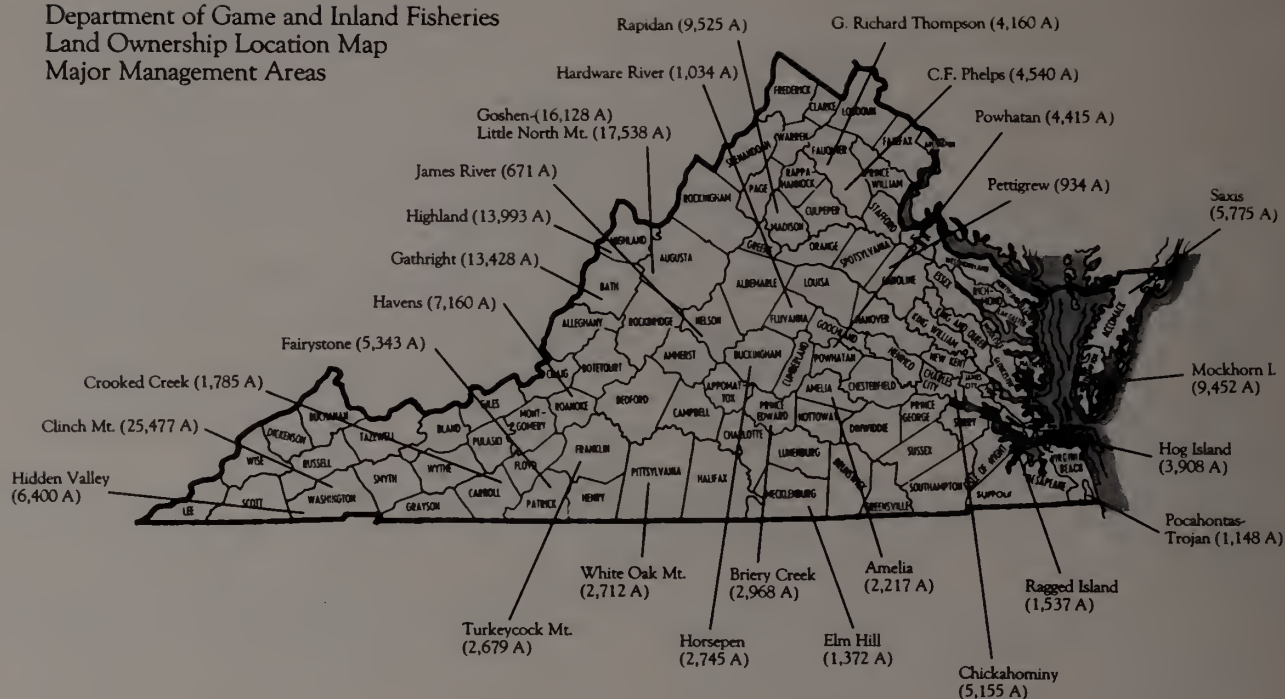
Primitive camping (no developed facilities) is permitted, except as otherwise posted, on Department lands not to exceed a maximum of 7 days and in groups not to exceed 3 camping units. Camping is prohibited on or within 100 yards of any Department owned or controlled boat ramp or fishing lake.

Amelia Wildlife Management Area — 2,217 acres in Amelia County. Deer, turkey, squirrel, rabbit, quail, dove, and waterfowl. David N. Ellinghausen, WMA Supervisor, c/o Hunting Information, 4792 Anderson Hwy, Powhatan, VA 23139.

Back Bay Hunting Areas—Pocahontas, 796 acres; Trojan, 351 acres. Fee hunting areas with blinds allocated by drawing. Information on blinds, fees, and drawings available from the Game Department after Labor Day. Otto



Department of Game and Inland Fisheries
Land Ownership Location Map
Major Management Areas



Halstead, Area Manager, Box 7100, Virginia Beach, VA 23457.

Briery Creek Wildlife Management Area—2,968 acres in Prince Edward County. Deer, turkey, quail, dove, rabbits, squirrels and waterfowl. Waterfowl hunting permitted during regular open season on Wednesday and Saturdays and season opening date only. George N. Goin, WMA Supervisor, Route 2, Box 247, Cumberland, VA 23040.

C. F. Phelps Wildlife Management Area—4,540 acres in Fauquier County. Deer, turkey, squirrel, rabbit, grouse, quail, and waterfowl. Good access to Rappahannock River. Robert D. Hanson, WMA Supervisor, Route 2, Box 105, Remington, VA 22734.

Chickahominy Wildlife Management Area—5,155 acres in Charles City County. Deer, turkey, squirrel, rabbit, quail, dove and waterfowl. Floating waterfowl blinds or hunting from shore with a distance of 500 yards between hunters. Primitive camping available with a maximum stay of 7 days. David Brime, WMA Supervisor, Route 1, Box 115, Charles City, VA 23030.

Clinch Mountain Wildlife Management Area—25,477 acres in Smyth, Russell, Tazewell and Washington counties. Bear, deer, turkey, squirrel, rabbit, grouse and waterfowl. Dan Lovelace, WMA Supervisor, Route 2, Box 569, Saltville, VA 24370.

Crooked Creek Wildlife Management Area—1,785 acres in Carroll County. Deer, turkey, rabbits, squirrel and grouse. D.H. Martin, WMA Supervisor, Rt. 2, Box 171, Woodlawn, VA 24381.

Elm Hill Wildlife Management Area—1,372 acres in Mecklenburg County. Upland game and doves. Danny W. Johnson, WMA Supervisor, Route 2, Box 100, Clarksville, VA 23927.

Fairystone Farms Wildlife Management Area—5,343 acres in Patrick and Henry Counties. Camping nearby at Fairystone State Park and Philpott Reservoir. Deer, turkey, squirrel, raccoon, dove and waterfowl. Mark Frank, WMA Supervisor, Route 2, Box 185, Bassett, VA 24055.

G. Richard Thompson Wildlife Management Area—4,160 acres in Fauquier County. Deer, turkey, squirrel,

and grouse. Irvin L. Kenyon, Jr., WMA Supervisor, Route 1, Sperryville, VA 22740.

Gathright Wildlife Management Area—13,428 acres in Bath and Alleghany Counties. Deer, turkey, squirrel, and waterfowl. Kenneth R. Sexton, WMA Supervisor, Route 2, Box 648, Hot Springs, VA 24445.

Goshen Wildlife Management Area—16,128 acres in Rockbridge County. Bear, deer, turkey, squirrel, and grouse. H. Eugene Sours, WMA Supervisor, Box 32, Swoope, VA 24479.

Hardware River Wildlife Management Area—1,034 acres in Fluvanna County. Deer, turkey, squirrel, rabbit, quail, waterfowl and dove. Stanley H. Patterson, WMA Supervisor, 4712 Old Buckingham Road, Powhatan, VA 23139.

Havens Wildlife Management Area—7,160 acres in Roanoke County. Bear, deer, turkey, squirrel, and grouse, Foot access only. Walt Hampton, WMA Supervisor, Route 1, Box 58, Buchanan, VA 24066.

Hidden Valley Wildlife Management Area—6,400 acres in Washington

County. Deer, turkey, and grouse. Dan Lovelace, Area Supervisor, Route 2, Box 569, Saltville, VA 24370.

Highland Wildlife Management Area—13,993 acres in Highland County. Bear, deer, turkey, squirrel, rabbit and grouse. Rodger L. Propst, WMA Supervisor, Route E, Box 70, Monterey, VA 24465.

Hog Island Waterfowl Management Area—3,908 acres in Surry County. Bowhunting for deer during special archery early season. Managed waterfowl hunting. Fee hunting area. Advance fee reservation required. Information on fees and drawings available from the Game Department after Labor Day. Clyde Abernathy, Area Manager, RFD, Surry, VA 23883.

Horsepen Lake Wildlife Management Area—2,745 acres (18 acre lake) in Buckingham County. Deer, turkey, squirrel, rabbit grouse, woodcock, dove, quail and waterfowl. Raymond S. Franklin, WMA Supervisor, Route 2, Box 626, Appomattox, VA 24522.

James River Wildlife Management Area—671 acres in Nelson County. Deer, turkey, squirrel, raccoon, rabbit, quail, dove and waterfowl. Raymond S. Franklin, WMA Supervisor, Route 2, Box 626, Appomattox, VA 24522.

Little North Mountain Wildlife Management Area—17,538 acres in Augusta and Rockbridge Counties. Bear, deer, turkey, squirrel, and rabbits. H. Eugene Sours, WMA Supervisor, Box 32, Swoope, VA 24479.

Mockhorn Island Wildlife Management Area—9,452 acres in Northampton County. Rail and limited waterfowl. Accessible by boat only. Granville Ross, WMA Supervisor, P.O. Box 212, Hallwood, VA 23359.

Pettigrew Wildlife Management Area—934 acres in Caroline County. Deer, turkey, squirrel, and quail. Milton Gallahan, WMA Supervisor, Route 3, Box 1186, King George, VA 22485.

Powhatan Wildlife Management Area—4,415 acres in Powhatan County. Deer, turkey, squirrel, rabbit, quail and dove. Stanley H. Patterson, WMA Supervisor, 4712 Old Buckingham Road, Powhatan, VA 23139.

Ragged Island Wildlife Management Area—1,537 acres in Isle of Wight

County. Waterfowl and deer by shotgun and bow and arrow only. Clyde Abernathy, WMA Supervisor, RFD, Surry, VA 23883.

Rapidan Wildlife Management Area—9,525 acres in Madison and Green Counties. Bear, deer, turkey, squirrel, rabbit and grouse. Irvin L. Kenyon, Jr., WMA Supervisor, Route 1, Sperryville, VA 22740.

Saxis Wildlife Management Area—5,775 acres in Accomack County. Deer, raccoon and waterfowl. Granville Ross, WMA Supervisor, P.O. Box 212, Hallwood, VA 23359.

Turkeycock Mountain Wildlife Management Area—2,679 acres in Franklin County. Deer, turkey, squirrel and raccoon. Mark Frank, WMA Supervisor, Route 2, Box 185, Bassett, VA 24055.

White Oak Mountain Wildlife Management Area—2,712 acres in Pittsylvania County. Deer, turkey, squirrel, rabbit, quail and dove. Jessie B. Robertson, Jr., WMA Supervisor, Route 1, Box 76-G, Chatham, VA 24531.

Waterfowl Blind Drawing On Management Areas

A public drawing for waterfowl blinds is held annually to hunt at Pocahontas, Barbours Hill and Hog Island Wildlife Management Areas. Applications are available from the Game Department's Richmond office after Labor Day.

General Rules and Procedures for Pocahontas, Barbours Hill & Hog Island Areas

Before any persons may hunt on these areas, they must first apply for shooting dates and be awarded same by an authorized representative of the Department of Game and Inland

Fisheries. All hunters must check in and out of the respective area headquarters. Only properly completed applications, including a current year Virginia hunting license number (exactly as printed), received in the Richmond office prior to 5 p.m. on October 13, 1989 will be entered in the public drawing. Only one (1) application per person will be accepted for each area. If duplicate license numbers are submitted for an area, both applications will be voided. Checks and money orders must be made payable to the Treasurer of Virginia in the correct amount for each area. A separate check must accompany each application. No cash. After the public drawing, reservations must be obtained in person or by mail only from the appropriate Area Manager.

Pocahontas Area & Barbours Hill Area—\$15 fee. Otto Halstead, Area Manager, Box 7100, Virginia Beach, VA 23457

Hog Island Area—\$15 fee. Clyde Abernathy, Area Manager, RFD, Surry, VA 23883.

General Rules and Procedures For Trojan Area (Not in Drawing)

There is no public drawing for permits on this area. Permits are issued daily on a first come-first served basis. Priority for Trojan blinds will be given to persons holding Pocahontas permits in the event of unsafe boating conditions on Back Bay. Rental fee is \$5 per day for use of a Department-owned blind. Dogs are permitted. The area will be closed to hunting at 2 p.m. daily. Trojan Headquarters is located at the end of Back Bay Landing Rd. off Rt. 615 in Virginia Beach. Area Manager: Otto Halstead, Box 7100, Virginia Beach, VA 23457.



Cooperative Public Hunting Areas

The Department of Game and Inland Fisheries is responsible for wildlife management on some 250,000 acres of land it does not own in return for hunting privileges and benefits to sportsmen.

Piedmont State Forests

These are owned by the Virginia Department of Forestry. Cumberland State Forest, 16,779 acres in western Cumberland County north of U.S. 60. Appomattox-Buckingham State Forest, 19,706 acres south of Route 24 in Appomattox and Buckingham counties. Prince Edward-Gallion State

Forest, 6,964 acres in eastern Prince Edward County north of Route 360. Pocahontas State Forest, 5,648 acres south of Richmond in Chesterfield County. A portion of this area which adjoins the state park is closed to hunting.

All of the above are open to holders of a \$5.00 state forest stamp available from agents located near the properties. A state or county hunting license is required. To purchase a stamp by mail, the individual's name, state hunting license number, and a self-addressed stamped envelope is required. Maps are available from each of the State Forest offices.

The season for some animals may be different on the State Forest than in the county in which they are located. These are specified in the Game Law Summary produced by the Depart-

ment of Game and Inland Fisheries. In addition, there are safety zones established on each forest around the offices and houses where no hunting is allowed.

For information, contact: James E. Bowen, Superintendent of State Forests. Phone (804) 492-4121. For maps and forest stamp information, write to: Cumberland State Forest, Route 1, Box 250, Cumberland, VA 23040.

Military Areas

Marine Corps Base, MCCDC Quantico. 50,000 acres in Fauquier, Prince William and Stafford counties. A minimum of 15% of the available hunting spaces each day are reserved for off-post civilian hunters. All must purchase the annual base hunting permit after attending a mandatory hunting orientation/safety lecture which is given at the base game checking station. Lectures are given from October 1-January 31 and during spring gobbler season. For information concerning cost of permits and times of lectures, call (703) 640-5523. Daily hunting quotas vary depending upon military commitments. Shotgun slugs are required for deer hunting. Deer may not be hunted with dogs or by driving. Certain areas allow muzzle loaders.

Fort A.P. Hill Military Reservation. 76,000 acres in Caroline County. Fee permits issued on a first-come-first-served basis from hunting section office. Shotgun and bow and arrow are only weapons permitted. Dogs may not be used to hunt deer. Dove hunting on Wednesdays and Saturdays only during the regular dove season. Maps available. Write to: Directorate of Engineering & Housing, Attn: Hunt Check Station, Fort A.P. Hill, Bowling Green, Virginia 22427-5000. Please enclose a self-addressed stamped envelope for requested information. Phone (804) 633-8300 or 633-8477. A state license is required and a \$20.00 permit.

Radford Army Ammunition Plant. 2,800 acres in Pulaski County. Deer is the only legal game that can be hunted. Hunters are selected from Game Department applications received before September of each year. Applications are available beginning July 1st of each year. A total of 250 hunters are



selected for 5 archery hunts and 120 selected for 4 shotgun hunts. All hunting is restricted to Saturdays and holidays (Thanksgiving). All hunting is restricted to the available stands. Applicants selected to hunt are not eligible to apply to hunt the following year. Application fee is \$2.50 and the hunt permit is \$7.50. All other appropriate licenses are required (big game, archery, state license). For further information, contact: Commander RAAP, Attn: Deer Hunt Coordinator, Radford, VA 24141. Other contacts: Virginia Department of Game and Inland Fisheries, Rt. 1, Box 107, Marion, VA 24354. Phone: (703) 783-4860 or the Richmond office at 4010 W. Broad Street, Richmond, VA 23230-1104. Phone: (804) 367-1000.

Fort Pickett Military Reservation. 45,198 acres in Brunswick, Dinwiddie and Nottoway counties. Hunting normally permitted Monday through Saturday except Christmas and New Year's Day. Daily hunting quotas are based on troop training activities. Geographical areas on Fort Pickett may be closed at any time due to military training missions on the installation. Only shotguns (no slugs) and bow and arrow are allowed for hunting. Dogs may be used to hunt both big and small game. Dove hunting is permitted on Wednesdays and Saturdays (afternoon only). Hunters must wear blaze orange (minimum of 500 square inches above the waist) during the deer firearms season. In addition to a state hunting license, a Fort Pickett permit is required. The permit fee is \$12.00. Hunting information and map may be obtained by sending a self-addressed, stamped envelope to: HQ, U.S. Army Garrison, Attn: Game Check Station, Fort Pickett, Blackstone, VA 23824. For additional information/inquiries, phone (804) 292-2618.

U.S. Army Corps of Engineers

- 4,750 acres in Franklin, Henry, and Patrick counties surrounding Philpott Lake. No permit required. Map available from Resource Manager, Route 6, Box 140, Bassett, VA 24055.

- 38,000 acres in Charlotte, Halifax and Mecklenburg counties surrounding John H. Kerr Reservoir. No special permit required. Nineteen developed

wildlife management areas. Map and management area guide available from Reservoir Manager, Route 1, Box 76, Boydton, VA 23917.

- 6,419 acres in Dickenson County surrounding John W. Flannagan Dam and Reservoir. No permit required. For additional information, contact Resource Manager, Route 1, Box 268, Haysi, VA 24256-9736; phone (703) 835-9544.

- 88 acres in Wise County surrounding North Fork of Pound River Lake. No special permit required. For additional information, contact: Project Supervisor, Route 1, Box 369, Pound, VA 24279-9369; phone (703) 796-5775.

State Parks

When traveling through State Park areas not designated for hunting, guns must be unloaded and cased.

Fairstone State Park—Route 2, Box 134, Stuart, VA 24171. 2,400 acres in Patrick and Henry counties only. No permit required. Remainder of park closed except for camping and other park activities. No maps.

Sailor's Creek Battlefield State Park—240 acres in Amelia and Prince Edward counties. Special designated areas for hunting are marked. For information, contact Twin Lakes State Park, Route 2, Box 70, Greenbay, VA 23942. No permit required. No maps.

Grayson-Highland State Park—Route 2, Box 141, Mouth of Wilson, VA 24363. 1,200 acres in Grayson County. No permit required. Maps available, phone (804) 786-1712.

False Cape State Park—4,321 acres in Virginia Beach. Limited waterfowl hunting by permit. Limited deer and feral hog hunting confined to October 7-14. Contact Area Manager, Otto Halstead, Box 7100, Virginia Beach, VA 23457.

Oconeechee State Park—Box 818, Clarksville, VA 23927. 2,100 acres in Mecklenburg County on Buggs Island Lake. No permit required. Maps available, phone (804) 786-1712.

While not designated for hunting, there are also six State Parks offering primitive camping to hunters of adjacent areas. For information, phone (804) 786-1712.

Industrial Land

Appalachian Power Cooperative Management Areas—6,000 acres surrounding Smith Mountain Lake in Bedford and Pittsylvania counties. No permit required. No maps available. For information, contact Department of Game and Inland Fisheries, Route 1, Box 76-G, Chatham, VA 24531.

Westvaco Cooperative Management Area—Westvaco, Timberlands Division, P.O. Box 577, Rupert, WV 25984. Phone (804) 352-7132. 900 acres in Amherst County. No permit required. Maps are not available.

Forest Industry Lands

An annual permit is required by each of these companies. Fees vary. A state license is required in addition to timber permit.

Bear Island Timberlands Company, L. P. Hunting Permits, P.O. Box 2119, Ashland, VA 23005. Approximately 125,000 acres are available for permit hunting in the counties of Albemarle, Amelia, Appomattox, Brunswick, Buckingham, Campbell, Caroline, Charles City, Charlotte, Cumberland, Dinwiddie, Essex, Fluvanna, Goochland, Greenville, Halifax, Hanover, King and Queen, King William, Louisa, Lunenburg, Nelson, New Kent, Nottoway, Orange, Pittsylvania, Powhatan, Prince Edward, Prince George, Spotsylvania, Stafford, and Surry. Permits are valid on any company properties which are not red posted or leased to private hunt clubs. Permits may be obtained in person at Bear Island's Mill Site in Hanover County on Route 738 approximately two miles east of Route 1 and six miles north of Ashland, or by mailing a request with a self-addressed stamped envelope. Permits are \$10 each; \$5 disabled and senior citizens with proof of age or disability required. Individual county maps showing property locations are available for \$1 per map. Mail requests for maps must be accompanied by a 10" x 13" self-addressed envelope with 45¢ postage. Permits are valid from September 1989 through May 13, 1990. Permits go on sale August 28. For more information, phone (804) 227-3394.



Champion International Corporation, Forest Lands Manager, P.O. Box 309, Roanoke Rapids, NC 27870. Some acreage is leased for exclusive use and is so posted. About 20,000 acres in southside counties, including Brunswick, Halifax, and Lunenburg, is open for permit hunting. Individual county permits are \$3 and statewide permits are \$7. County maps showing permit hunting lands are available for \$1 each if the request is accompanied by a 10" x 13" or larger self-addressed envelope with postage for three ounces.

Chesapeake Corporation—Public hunting permits are sold at the four Woodland Regional Offices during normal business hours or by mail. The West Point Office will be open the first three Saturday's in November from 9 A.M.-Noon. All mail requests must be accompanied by a self-addressed, stamped envelope. Blanket

requests for maps will not be honored. Permits will not be issued to persons under the age of seven. Permits are valid for hunting only. Permits are \$10. The Woodland Area offices are:

West Point Region—approximately 48,000 acres located in Charles City, Gloucester, James City, King and Queen, King William, Mathews, Middlesex, and New Kent counties (VA). Chesapeake Corp., Hunting Permits, Box 311, West Point, VA 23181.

Pocomoke Region—approximately 15,000 acres located in Accomack, (VA), Dorchester, Caroline, Wicomico, Worcester, Somerset (MD), and Sussex (DE). Chesapeake Corp., Hunting Permits, Box 300, Pocomoke City, MD 21851.

Keysville Region—approximately 50,000 acres located in Appomattox, Bedford, Buckingham, Charlotte,

Cumberland, Fluvanna, Goochland, Halifax, Henry, Lunenburg, Mecklenburg, Nottoway, Pittsylvania, Powhatan and Prince Edward counties (VA). Chesapeake Corp., Hunting Permits, Box 450, Keysville, VA 23947.

Warsaw Region—approximately 25,000 acres in Caroline, Essex, King George, Lancaster, Louisa, Northumberland, Orange, Richmond, Spotsylvania, and Westmoreland counties (VA). Chesapeake Corp., Hunting Permits, Box 942, Warsaw, VA 22572.

The Glatfelter Pulp Wood Company, Thomas N. Reeder Jr., District Manager, Box 868, Fredericksburg, VA 22404. Phone (703) 373-9431. Counties with one or more tracts open for hunting include Appomattox, Buckingham, Caroline, Culpeper, Cumberland, Fauquier, Fluvanna, Halifax, Hanover, King George, Louisa, Lunenburg, Nottoway, Orange and Spotsylvania counties. Total is about 25,000 acres. Some acreage is leased for exclusive use and so posted; all other unposted properties open to permit holders. Permits cost \$10 and require state license information. Special regulations are printed on back of permit. Maps are available upon request. All requests must be accompanied by stamped self-addressed envelope.

Lester Properties, Kenneth O. Scruggs, Forestlands Department Manager, Post Office Drawer 4991, Martinsville, VA 24115. Phone (703) 632-2195 ext. 250. Tracts are available for lease at negotiable prices, but choice areas are going quick. No public hunting is available. There are 20,000 acres in the counties of Franklin, Halifax, Henry and Pittsylvania. Maps are available upon request.

Westvaco, Timberlands Division, P.O. Box 577, Rupert, WV 25984. More than 160,000 acres open in 20 counties, including Appomattox, Botetourt, Buckingham, Campbell, Halifax and Pittsylvania. Some tracts leased exclusively to hunt clubs. Combination hunting and fishing permits for \$10, upon request and accompanied by self-addressed, stamped envelope. Maps are not available.

P.H.O.N.E. (Poachers Hurt Our Natural Environment) Program

The Department of Game and Inland Fisheries established a violation reporting program on October 1, 1986.

A toll-free number (1-800-237-5712) is available 24 hours a day, 7 days a week including holidays, to report game, fish or boating violations. The P.H.O.N.E. Line is staffed 8 a.m. -5 p.m. daily. An answering system will record call-back requests after hours.

A reward fund has been established by The Virginia Sportsmen Reward Fund, Inc. and is offered for information leading to an arrest. Callers may remain anonymous and are not required to testify in court.

Maps

A good map is essential for a successful hunting experience. Topographic maps are available from the following sources:

Virginia Reproduction & Supply Company, 9 W. Cary St., Richmond, VA 23220, (804) 643-9116

Virginia Division of Mineral Resources, Box 3667, Charlottesville, VA 22903, (804) 293-5121.

U.S. Geological Survey, Branch of Distribution, Box 25286, DFC, Denver, CO 80255. (Use this address if you know the particular map you want.)

U.S. Geological Survey, National Cartographic Information Center (NCIC), 507 National Center, Reston, VA 22902, (703) 860-6045. (Use this address to request a index of the state maps available to find the particular map you are looking for.)

Contact each firm individually for procedures and fee information.

Statewide Deer, Bear, and Fall Turkey Harvest

County	1986 — 1987			1987 — 1988			1988 — 1989		
	Deer	Bear	Turkey	Deer	Bear	Turkey	Deer	Bear	Turkey
Accomack	776	0	0	661	0	7	603	0	0
Albemarle	1,808	61	261	2,059	39	359	1,598	46	172
Alleghany	2,210	9	514	1,697	24	318	1,225	21	229
Amelia	1,389	0	201	1,858	0	302	1,333	0	161
Amherst	1,390	15	274	1,599	9	388	1,334	16	177
Appomattox	697	0	187	864	0	318	690	0	156
Augusta	4,140	25	324	2,658	48	218	3,285	36	153
Bath	4,286	8	506	3,219	25	339	3,377	18	284
Bedford	2,913	22	359	3,650	10	566	3,020	28	307
Bland	1,826	3	290	1,541	19	260	1,903	3	328
Botetourt	2,698	32	405	2,474	19	478	2,555	33	284
Brunswick	1,505	0	190	1,704	0	263	1,510	0	73
Buchanan	0	0	0	17	1	3	0	0	0
Buckingham	1,773	0	331	2,060	0	471	1,554	0	334
Campbell	497	0	153	568	0	266	447	0	118
Caroline	1,751	0	332	1,670	0	396	1,410	0	281
Carroll	777	0	290	763	0	295	836	0	324
Charles City	1,342	0	31	924	0	41	850	0	20
Charlotte	892	0	164	1,088	0	260	958	0	130
Chesapeake	356	8	0	394	5	0	272	10	0
Chesterfield	833	0	45	665	0	83	597	0	17
Clarke	744	0	36	662	0	52	741	0	22
Craig	2,911	16	324	2,180	14	196	2,270	24	174
Culpeper	886	0	129	930	0	160	933	0	104
Cumberland	1,447	0	208	1,887	0	345	1,392	0	232
Dickenson	0	0	0	27	0	3	0	0	0
Dinwiddie	1,129	0	164	1,190	0	248	872	0	166
Essex	300	0	50	389	0	96	413	0	90
Fairfax	150	0	1	218	0	4	223	0	1
Fauquier	1,962	0	115	1,973	0	157	2,226	0	99
Floyd	745	0	179	785	0	180	831	0	161
Fluvanna	957	0	185	1,339	0	303	1,071	0	176
Franklin	1,251	0	252	1,375	0	428	1,377	0	311
Frederick	2,371	0	327	1,800	0	367	2,055	0	220
Giles	2,220	19	309	2,026	25	388	1,931	8	285
Gloucester	310	0	0	370	0	11	406	0	0
Goochland	880	0	158	1,049	0	218	748	0	103
Grayson	3,379	0	227	2,769	0	199	3,139	0	313
Greene	168	23	30	199	17	45	145	22	16
Greensville	1,249	0	9	1,202	0	24	1,118	0	27
Halifax	1,142	0	213	1,511	0	441	1,284	0	266
Hampton-Newport News (city)	266	0	0	252	0	3	199	0	0
Hanover	432	0	154	507	0	162	551	0	93
Henrico	471	0	19	592	0	24	407	0	12
Henry	601	0	52	684	0	56	705	0	40
Highland	3,389	12	230	2,492	14	211	2,544	20	150
Isle of Wight	1,545	0	0	1,520	1	7	1,791	0	0
James City	520	0	0	648	0	4	401	0	0
King & Queen	831	0	115	902	0	209	871	0	195
King George	711	0	0	1,016	0	47	968	0	11
King William	810	0	161	827	0	149	802	0	142
Lancaster	463	0	0	557	0	3	545	0	2
Lee	224	0	33	308	0	132	398	0	102
Loudoun	2,607	0	68	2,378	0	92	2,607	0	25
Louisa	965	0	188	1,048	0	299	668	0	140
Lunenburg	777	0	88	1,015	0	150	863	0	106
Madison	396	53	53	433	34	92	401	47	49
Mathews	119	0	0	130	0	6	129	0	0
Mecklenburg	625	0	6	912	0	32	861	0	13
Middlesex	124	0	8	114	0	13	116	0	14
Montgomery	1,085	16	159	1,091	9	202	1,250	0	173
Nelson	880	44	188	1,087	10	281	812	37	103
New Kent	1,411	0	30	1,025	0	84	904	0	37
Northampton	423	0	0	323	0	1	310	0	0
Northumberland	450	0	0	551	0	10	534	0	6
Nottoway	1,071	0	79	1,126	0	153	1,063	0	96
Orange	577	0	71	748	0	137	630	0	63
Page	1,086	25	86	980	34	104	934	47	48
Patrick	716	0	95	920	0	143	840	0	116
Pittsylvania	2,259	0	230	2,921	0	468	2,671	0	209
Powhatan	1,463	0	140	1,927	0	222	1,587	0	126
Prince Edward	1,357	0	233	1,779	0	331	1,333	0	149
Prince George	1,261	0	57	1,442	0	119	1,209	0	82
Prince William	791	0	44	936	0	111	480	0	35
Pulaski	1,039	0	204	1,031	2	159	1,036	0	133
Rappahannock	1,347	18	70	1,661	28	98	1,667	27	58
Richmond	548	0	0	735	0	39	652	0	7
Roanoke	338	0	47	406	6	80	417	6	45
Rockbridge	2,652	35	324	2,200	16	311	2,349	20	206
Rockingham	5,251	48	253	2,959	73	166	3,342	37	126
Russell	125	4	6	154	2	48	184	2	39
Scott	364	0	46	429	0	182	559	0	153
Shenandoah	3,729	16	317	2,624	24	293	3,088	23	209
Smyth	1,144	1	162	1,137	0	136	1,400	1	214
Southampton	4,185	0	0	4,627	0	3	4,978	0	0
Spotsylvania	510	0	74	622	0	136	229	0	71
Stafford	627	0	64	784	0	142	674	0	58
Suffolk	1,429	2	0	1,293	7	4	1,158	12	0
Surry	1,897	0	0	1,643	0	50	1,872	0	25
Sussex	2,376	0	44	2,109	0	93	2,149	0	47
Tazewell	325	6	78	383	16	111	554	5	99
Virginia Beach	400	0	0	293	0	0	307	0	0
Warren	1,194	13	111	1,280	24	102	1,234	8	61
Washington	440	3	42	397	0	78	459	1	67
Westmoreland	465	0	0	622	0	62	686	0	17
Wise	168	0	35	273	0	135	307	0	102
Wythe	1,780	2	183	1,604	2	166	1,592	4	214
York	661	0	6	838	0	10	611	0	3
Totals	121,760	539	12,426	119,309	557	16,157	114,420	562	10,605

Hunting Season Outlook 1989-90

by Bob Duncan, Assistant Chief Game Division

1988-89 Deer Season Summary, Statewide Results

Even with two new deer management programs which helped to increase the kill, the 1988 deer harvest fell short of the previous season by 4.4 percent with a statewide deer total of 114,085. This represents a decline of 5,224 deer in the kill from the 1987 statewide total of 119,309.

While this represents the third best overall deer season on record, behind 1987 and 1986 (121,801), there was better success for western deer hunters than for those in the east. Deer hunters west of the Blue Ridge posted the second best deer harvest with a total of 45,795 which was an increase of 3,429 animals over the previous year's total of 42,366. Only five of the 31 counties west of the Blue Ridge, experienced a reduction in the kill. East of the Blue Ridge, 75 percent of the counties had a lower deer kill. Even with these declines, eastern deer hunters still experienced their third best effort with a total of 68,290 deer. This was down 8,653 from last year's record eastern kill of 76,943.

Reduced hunting pressure, reduced herds in some areas, abundant mast crops, some disease losses and poor weather in some counties with limited doe days, combined to limit the harvest in some areas. Two new deer management programs (DCAP and DMAP) helped to increase the harvest in some counties; however, the difference was not enough to offset the overall declines, especially in the east.

1989-90 Deer Season Forecast

A deer hunting regulation change to provide for a uniform three deer bag limit in all counties east of the Blue Ridge should result in both an increase in hunting opportunity and antlerless deer harvest in eastern Virginia. Whitetail hunters in certain counties west of the Blue Ridge will enjoy an increased seasonal bag limit and increased number of either sex deer hunting days in Botetourt, Clarke, Craig, Frederick, and Warren. These counties will now



have a deer limit of three per license year (one of which must be antlerless) and either sex deer days will be allowed on the last three days as opposed to two in the past. In addition, black powder hunters will have the last six days of the special primitive weapons season to harvest bucks or does. Mathews and Middlesex counties increased in the number of "doe" days, from one to three. Caroline County will have fewer either sex deer hunting days, having been cut back from 12 to the last six days to allow for some herd increase. The Chickahominy Wildlife Management Area also received a reduction from six to one in the "doe days" to allow for a herd increase. The C. F. Phelps WMA has been limited to a two-week bucks only season with a bag limit of one to provide for increased deer numbers.

In southwest Virginia, District Biologist John Baker is predicting that the 1989 deer season will be as good or better than the record mark set last

year. Baker expects that his either sex deer hunting counties will harvest about the same number of deer and that his bucks-only counties will continue to post increases.

District Biologist Al Guthrie also expects a deer season equal to or slightly better than last year. Only one of Guthrie's counties, Giles, (out of Botetourt, Craig, Floyd, Giles, Montgomery, Pulaski and Roanoke) experienced a slight decline last year.

In the north central mountains, District Biologist Gary Norman looks for a slight improvement over last year's deer kill.

Biologist Rod McClanahan, in the northwest mountains, also expects a season similar to last year. McClanahan's counties west of the Blue Ridge enjoyed a 9.5 percent increase in harvest in 1988 over 1987.

In the southwest piedmont, District Biologist Jay Jeffreys predicts that deer hunters will have a better season than last year. Jeffreys' district experienced

a 14 percent decline in kill last year; however, Jay reports that conditions are good for an increase this season.

Biologist and Regional Manager Jim Bowman also feels that opportunities for the eastern piedmont deer hunter will be improved over the 1988 season. The eastern piedmont district deer total was down 20 percent in 1988 from the previous year. Some of this reduction in harvest was the result of reduced hunter pressure and the influence of a good mast crop in some areas. Bowman expects the eastern piedmont to rebound this year.

District Biologist Steve Brock is expecting an increase in the deer harvest in his northern Tidewater counties. Brock's district was down by 8.5 percent last year. However, increased participation in the Department's Deer Management Assistance Program (DMAP) and the uniform three deer bag limit should provide an increase in the deer kill north.

South of the James River, District Biologist Don Schwab is expecting only a slight increase over last season. In the heart of southside deer hunting country, the deer kill in Schwab's counties remained virtually unchanged with only a one percent decline last season. Continued participation in the DMAP program by hunt clubs and in the Damage Control Assistance Program (DCAP) by landowners should result in a slightly higher take according to Don.

In summary, better hunting conditions, increased herds and more liberal hunting regulations will likely mean an increase in the deer kill this fall.

Black Bear

The Virginia black bear harvest increased for the sixth consecutive year with a 1988 season total of 579, according to research biologist Dennis Martin. This represents a slight increase over the 564 animals killed the previous year, and is the fifth consecutive record harvest. This record comes after a portion of the bear range was closed to hunting and the season shortened in some counties.

The 1981-1987 average percent females was 30.1, thus further reinforcing the Wildlife Division's objective of reducing the number of female

bears killed by recommending a more conservative, later season. The Board changed the opening dates at the recommendation of the Wildlife Division after the state legislature passed a law removing mandated bear season lengths in 10 southwest counties. Furthermore, the hunting of black bear in portions of counties normally open to hunting bear, was prohibited south of Interstate 81 from Roanoke to Bristol, and northwest of state Route 19 from Bristol to Bluefield. These areas have had very low bear populations.

The relocation of bears to closed areas began during the summer of 1988 and will continue. Bears that are trapped have been released into the closed portions of several of these southwest counties in an effort to bolster low breeding populations. Thirty-one bears were released in 1988 and 21 have been released through mid-July in 1989. Biologists feel that the relocation effort, combined with the more restrictive season will substantially improve the opportunity for the bear hunter and others that enjoy this fine Virginia legacy in future years. These efforts, combined with a good mast crop in 1988, and the prognosis of a good mast crop in 1989 have created optimistic harvest predictions for this fall.

Fall Turkey Season

The 1988 statewide fall turkey harvest of 10,623 birds was down considerably from the record fall kill of 16,157 established in 1987. The decline in turkey hunting success was in large part the result of a poor hatch and survival of young with the statewide juvenile to hen ratio of only 3.6 young to adult hen. In many areas the ratio fell below 3.0 and the percentage of young juvenile turkeys in the fall harvest averaged 61.9 percent.

Not only were there fewer numbers of birds, but turkeys were apparently widely scattered as a result of a good statewide mast crop. Regionally, southwest Virginia was the only area in the state to experience an increase in turkey harvest. Western turkey hunters overall fared better than those in the east. The percentage drop in the turkey kill was three times greater east of the Blue Ridge than in the counties

west.

According to reports from field personnel, the prospects appear good for an improved fall season over last year. With a better hatch and increased poult survival, and the absence of a drought this nesting season, the fall woods should hold the promise of more wild turkeys in the Old Dominion.

Spring Gobbler Season

Spring gobbler hunters can enjoy extra hunting time this season as a result of new regulations which changed the closing hour from 11:00 a.m. to 12:00 noon. Many spring gobbler hunters enjoy hunting later in the morning and this change will afford them this opportunity and compensate for the change in daylight savings time. The Board also established a new framework for the spring gobbler season which will now consist of opening on the Saturday nearest April 15 and lasting for five weeks and six Saturdays.

The 1989 spring gobbler season set a record harvest with a reported kill of 7,445. The 1989 record harvest represented a 5 percent increase over 1988 figures. Counties east of the Blue Ridge reported a 10 percent increase with top kills reported in Sussex, Franklin, Bedford, Carroll and Halifax counties. The harvest in counties west of the Blue Ridge dropped 5 percent. The top five counties were Scott, Wise, Grayson, Frederick, and Botetourt.

Good gobbling activity requires good weather conditions, and during the 1989 record season weather conditions were generally mild. Mast conditions in much of the state were good last year and gobblers in good physical condition are thought to gobble more actively. Prospects are good this fall for another repeat performance of good mast crops. The 1990 spring season should offer excellent gobbler hunting opportunities.

Ruffed Grouse Season

Commonwealth ruffed grouse hunters suffered through a dismal season in 1988-89. Hunters cooperating in a Department survey reported the second lowest flushing rate since the survey began 16 years ago. Reproduction, evidenced by the percentage of

juveniles in the cooperators harvest, was very poor. Mast failures and drought conditions may have influenced brood survival last year.

Grouse populations are thought to be cyclic over much of their range. While no distinct trend or cycle prevails in Virginia, the prospects for grouse populations this fall should be improved as hen grouse should have gone into this spring brood rearing season in good condition. Grouse hunters should take heart; conditions can't get much worse. The forecast is for better hunting this fall!

Bobwhite Quail

After last year's dismal season, quail hunters across the state should enjoy some improvement in quail hunting success. According to Wildlife Research Biologist Mike Fies, quail hunters in 1988-89 bagged an average of 0.29 quail and flushed 0.22 coveys per hour, the lowest rate of hunter success since the Department began monitoring the quail harvest 12 years ago. The piedmont region experienced the greatest decline in hunter success, with the Tidewater area also showing a distinct drop in the numbers of quail bagged and coveys flushed.

Despite these declines, the prospects for some degree of population recovery look good. A mild winter followed by adequate rainfall has produced better than average nesting conditions, and should have also had a beneficial effect on insect numbers and seed production. The Tidewater region is expected to be the most productive quail hunting area this year, with the piedmont region also showing some improvement. Quail hunters in northern Virginia should also find improved hunting opportunities, while hunters in the western mountains will continue to have to search diligently to locate coveys.

Squirrels

Squirrel hunters across the state should find "bushytails" more abundant this year. With a good acorn crop this past season, squirrel populations should begin recovering from the low numbers caused by food shortages during the previous two years. Mild temperatures and minimal snowfall accumulations, especially in the west-

ern mountains, made acorns readily available throughout the entire winter. As a result, squirrels entered the breeding season in excellent physical condition and should have produced more than an average number of young squirrels. According to Mike Fies, squirrel hunters in northern Virginia and in the central mountain region should experience the best squirrel hunting, with good numbers of squirrels also found in the western piedmont and Tidewater areas. Hunters in the southwest mountains and eastern piedmont may have to scout harder for good areas to hunt. In counties with an early squirrel season, hunters should concentrate their efforts in areas where hickory nuts are available. Those hunters interested in harvesting fox squirrels should try hunting in Augusta, Bland, Highland, Rockingham, or Russell counties, where this species is the most abundant.

Mourning Dove

Research Biologist Jack Gwynn reports that in Virginia the number of doves heard on call-count surveys in 1989 increased 10.1 percent from 1988. However, statistically no significant changes were observed in dove population trends. In spite of late crop planting in some portions of the state, crop harvest schedules should be similar to last season. Virginia dove hunters experienced an above average season last year and the 1989 dove season should be as good or better.

Rabbits

Small game hunters can expect to find good numbers of rabbits this season. Improved rabbit hunting success was observed in some areas last year, and the prospects for a better season this year look good. Weather conditions have been very favorable for rabbit production and many young rabbits have been observed statewide. According to Mike Fies, the eastern mountain region was the most productive rabbit area last year, based on the number of rabbits observed by rural mail carriers. Rabbit hunting success should improve noticeably in the piedmont and Tidewater regions this year, and should be at least as good as last year in most other areas.

Woodcock

Most ardent upland game bird hunters in Virginia find woodcock as a bonus bird to either quail or grouse hunting. Many however, recognize the fine sporting opportunity offered by the "timberdoodle" and pursue them as primary targets.

Last year, Virginia woodcock hunters enjoyed higher bag rates and flushing rates as reported by cooperators with both the Virginia Department of Game and Inland Fisheries (VDGIF) and the United States Fish and Wildlife Service (USFWS) hunter surveys.

The fall forecast for woodcock appears bleak. Greg Sepik, research biologist with the Moosehorn National Wildlife Refuge reports that weather conditions of snow and rain during the brood season has resulted in the highest chick mortality he has seen, and nesting chronology appeared to be delayed approximately three weeks.

Waterfowl

Veteran waterfowl biologist Fax Settle reports that breeding duck numbers are (with few exceptions) below last year's level and continue significantly below the long term average. Thus, the supply of breeders returning to the nesting areas is not good. The water conditions in the prairie nesting areas are spotty, but not appreciably better than last year. Significant amounts of vegetative nesting cover adjacent to pothole areas have been disturbed by agricultural practices, further reducing the value of many pothole areas which do have adequate water.

Settle further advises that Canada appears to be close to normal. Numbers of breeders returning to central Ontario looked good and habitat conditions improved. Eastern Ontario, Quebec, New England and the Maritimes experienced delayed breeding (up to two weeks in some areas). Late flooding from heavy rains has caused some concern in those areas: final evaluation of impact is still being made.

Weather conditions remained cold late in the eastern Hudson Bay area where many of Atlantic Flyway Canada geese nest. The effects of late nesting on this population of Canada geese is yet to be determined. □



overhead cover deterred woodcock from using them. Although we need to do more research, maybe leaving strips of fallow field between different crops would give the woodcock a safe haven to forage for earthworms and roost.

Today, habitat use for humans commands a high priority. Land is under pressure from developers and farmers pressing to grow crops on as much of their land as possible. We need to keep in mind that wildlife, including the secretive woodcock, are an integral part of our environmental system; that their needs are just as important as our own.

So, in final perspective, what did we learn about timberdoodles on Virginia's Eastern Shore? Well, woodcocks winter there because there is a mix of fields, woodlands, plenty of earthworms, and minimal development. During the winter of 1988-89, woodcock survival was probably good, due to the mildness of that winter. Hopefully, that will be reflected in their return to breeding grounds farther north, and a good production of young. We hope to see banded birds return to the Cape Charles area this year, and encourage hunters to turn in any bands from birds they harvest, as every bit of information adds to our understanding of these birds.

And so, when we no longer heard our radio-tagged woodcocks, we assumed that they were headed north to spend the spring and summer in New England or Canada. Maybe we'll see them this year; in any case, we hope there always will be a spot left for them to return to in Virginia. □

Kurt Buhlmann is currently a field zoologist for the Virginia Natural Heritage Program. Peter Tango has been involved with research on snowshoe hares and river otters for the Virginia Department of Game and Inland Fisheries.

The authors wish to thank the landowners of Northampton County who allowed them access to their properties, and to Sherman Stairs, Mike Bryant, and the staff of the Eastern Shore of Virginia National Wildlife Refuge, Gary Norman (VDGIF), and Roy Kirkpatrick and Mike Vaughan of VPI&SU for their assistance on this project.

Outdoors—That's

by Steve Ausband
photos by Roy Edwards

When I was in undergraduate school, everybody took P.E. Mostly the guys took a semester of something called "General Fitness"—a code name for push-ups and laps around the track—followed by several more semesters of basketball or weightlifting or something else we had all done before and knew already we could do. I'm not sure what the girls took; my wife says she remembers taking golf one semester and not liking it, but when she signed up for tennis the next term, the instructor discouraged her on the grounds that, if she had trouble striking a stationary target, she would certainly find a moving one too challenging. It was all healthy enough, and I've always enjoyed a pickup game of basketball or football anyway, but the course menu, so to speak, was pretty monotonous.

Things have changed. Melanie Stanley could have pointed that out to me, even if I hadn't already known it.

Melanie describes herself as a country girl. A tall, striking P.E. major at Averett College, and currently a student in one of my English classes, she had come into my office to talk about a course—not my course, but one called "Marksmanship," that she had taken the previous semester. She was enthusiastic.

"It's just about the most interesting course I've had in college," she said. "I learned much more than I thought I would."

The Halifax native was not entirely a stranger to guns before she enrolled in the course, she told me, and she had even killed a deer a few years back. But she had never really studied marksmanship as a discipline, nor had she taken a hunter safety course. In her Physical Education 150 course last semester, she studied safety, hunter

Today, kids in high school and college learn outdoor skills instead of basketball and square dancing as part of the their physical education programs. And, there's hope this kind of training may safeguard the future of our wild places.

etiquette, the four basic rifle shooting positions, and the care and preparation of game meat. She learned about tree stands, scoring a 50-point target, and how to cut up and wrap venison. Somewhat to her own surprise, she developed into a very good shot. "That's one thing more I like," she said. "The girls can compete absolutely equally with the guys. By the end of the course, Tina Catron and I were doing real well." (I found out later that Melanie was being modest. On the last trip to the rifle range, she and Tina had the two highest scores in the class. The two girls' willingness to listen to a good teacher and follow his instructions more than made up for any lack of experience they might have had.)

Melanie's fellow students last semester included four or five veteran hunters, but there were also several kids in the class of 15 who had never handled a gun at all—some who had never even seen a gun close up! A few were trepidatious at first. "There were four girls who had never even touched a gun, and they were a little fearful,"

said Melaine. "When the teacher brought in several different kinds of firearms, including a couple of pistols, and explained how they worked, the girls didn't even want to touch them." Nevertheless, by the end of the course, all the students were shooting acceptable scores.

Dr. Tommy Foster, who taught the marksmanship course, told me that courses dealing with some aspect of outdoor education are not at all unusual on many campuses these days. Averett students in recent years have received instruction in canoeing, camping, and rock-climbing, in addition to marksmanship, and one of the more interesting photographs in the 1989 catalogue shows a class rappelling down the sheer brick face of Frith Hall. Nearby Patrick Henry Community College (PHCC) in Martinsville offers fly fishing as well as more expected pursuits like backpacking and hiking. It also offers a course called "Wilderness Adventure," which the catalogue describes as "a study of man's relationship to the environment, with special attention to equipment, dress, and methods of conserving body energy necessary to withstand adverse conditions encountered in a wilderness setting." I was told that students refer to it as the "the survival course." PHCC even offers a course called "Fundamentals of Bow Hunting," which deals with tackle, techniques, game laws, field care of game, conservation, and bow hunters' responsibilities.

Virginia Wesleyan College offers trap and skeet shooting, James Madison University features backpacking ("extended, adventure-type camping"), and Norfolk State University includes Nature Study in its physical education listings. Virtually every college and university in Virginia lists some form of outdoor education

where we wanna be . . .

Marksmanship courses are becoming more popular in schools.





The new emphasis on teaching "lifetime" sports has brought skills such as bowhunting, archery, and associated hunting skills into the forefront in high school and college physical education curriculums.

It doesn't have to end with school . . .

There are many opportunities for youngsters to learn outdoor skills such as bowhunting, shotgun and rifle shooting, wildlife identification and orienteering throughout the state. The mandatory hunter education course coordinated by the Virginia Department of Game and Inland Fisheries has a network of volunteers giving the course on a regular basis. Once completing the course, youngsters may continue their outdoor education by hooking up with one of the many teams that train the entire year for the Virginia Hunter Education Championships, sponsored by the Virginia Department of Game and Inland Fisheries. Last year, the top junior team at the Championship went to the National Hunter Education Championships, and testing their skills against youngsters from across the nation and Canada, came home with the title of the No. 1 team in the country. For more information on these hunter education programs, contact the Hunter Education Coordinator, Virginia Department of Game and Inland Fisheries, P.O.Box 11104, Richmond, VA 23230-1104. □

course in its catalogue, and many colleges offer a fairly wide variety of outdoor experiences.

Instructors sometimes bring in resident experts for some aspects of the outdoor courses. Chris Metzger of the Danville Parks and Recreation Department served as guest lecturer in several of Foster's classes. Metzger teaches hunter safety through Parks and Recreation, and one of the requirements of the class was that students obtain the Virginia Hunter Safety Certificate. Virginia Department of Game and Inland Fisheries law enforcement officer Jay Calhoun also lectured to the class, discussing hunter etiquette and providing advice for extended hunting trips. He also talked about the different kinds of firearms adaptable to various hunting situations. Foster told me that his class in Outdoor Education, dealing with a variety of topics from nature study to recreational fishing, may feature as guest lecturers ecologists, plant taxonomists, and a decoy carver.

The interest in outdoor sports as a part of the college physical education curriculum is by no means brand-new, according to Foster. One new trend, he told me, is outdoor therapeutic work, in which students learn to use outdoor recreational opportunities, from camping or backpacking to fishing, as an aid to the recovery of victims of various kinds of trauma. Another P.E. teacher told me that as the interest of college physical education programs has become more and more focused on lifetime activities rather than merely on competitive sports, areas such as outdoor education have become increasingly important. "There are hikers in their eighties," she told me. "And how old do you have to be before you are too old to fish, or even to draw a bow?"

We hear a lot these days about the increasing demands put on our outdoor resources. There are more people, which means on any given weekend there are more folks using the same water or the same woods. An even more serious problem involves people making non-recreational uses of the same resources: those who want to channel the streams or divert the

water, those who want to bulldoze the woods for shopping malls and industrial parks, and those who want to drain the swamps for farmland or even just for parking lots. We can't just wish there were fewer demands on the resource, but we can hope that the demands will be intelligent and conservation-oriented. Maybe the courses in

dents who would as soon have handled a rattlesnake as a rifle or shotgun, and whose mental picture of a typical hunter or fisherman involved cartoon characters, beer cans, and stylized pickup trucks now have a more realistic view of people with whom they share the outdoors. I like the fact that a kid I had spotted as disinterested in



The Virginia Department of Game and Inland Fisheries coordinates the hunter education program that teaches hunting skills throughout the state for both youngsters and adults. You are invited to participate in this free program. Write the Hunter Education Program, VDGIF, P.O. Box 11104, Richmond, VA 23230-1104 for details.

outdoor recreation are a step in the right direction. Try asking yourself whether it is better to have a generation of college students educated in the proper use and appreciation of our natural resources or to have them blissfully unaware of anything about nature except what they see on television or through the windows of their automobiles as they drive down the highway. Which kind of student is more likely to misunderstand the sportsman? Which is more likely to drain a swamp? Which is more likely to forget the recreational hunter, fisherman, hiker, camper, backpacker, and wildlife photographer when he's figuring out how many board feet of lumber can come out of a tract of hardwoods?

I like the current emphasis on outdoor education. I like the fact that stu-

everything except mega-decibel rock and roll signed up for a class in which he just climbed a rock (a very large, formidable rock) and sat on top of it and listened to a music he had never heard before—one for which he needed neither earphones nor amplifiers. I like the idea that Melanie, who is proving to be a good student in a literature class, also learned to shoot a consistent 48 or 49 on a 50-point target, and that she is trained not only as a target shot but as a safe hunter. And finally, I'm glad something came along to take the place of the required courses in general fitness. God knows, this new stuff is more interesting than push-ups, laps, and basketball! □

Steve Ausband is the chairman of the English Department of Averett College in Danville, and is a frequent contributor to Virginia Wildlife.

A DANGER OR ENDANGERED?



THE CANEBRAKE RATTLESNAKE

"In April we discontinued this work for fear of rattlesnakes, which recover vigour in that month."—William Byrd II to John Boyle, 20 May 1729

The colonists in 17th and early 18th century Virginia were deathly afraid of the rattlesnake, which we now call the canebrake (*Crotalus horridus atricaudatus*), in eastern Virginia. Byrd's letters, especially those written about the time he surveyed the state line between Virginia and North Carolina, even suggest that certain forms of outdoor work were curtailed from April through September because of the fear of being bitten by rattlesnakes. This fear was not unfounded, for the stories of the deaths of people who were unlucky enough to be bitten were not pleasant.

Although most people killed these snakes, as they still do, a few of the early colonists wrote of their experiences with them. In 1672, John Lederer found a six-and-a-half foot individual at the falls of the York River with a squirrel in its stomach. This was the first mention of a prey item for the North American rattlesnake. In his *History of the Dividing Line*, Col. William Byrd II noted three places where rattlesnakes were killed. Rattlesnakes no longer occur at those places where these early naturalists saw them, but the rattlesnake was once quite widespread in Virginia and probably once occurred throughout the Piedmont and Coastal Plain.

Today, few people except deer and raccoon hunters in southeastern Virginia, are aware that a rattlesnake lives in the wilds of the cities of Chesapeake, Suffolk, and Virginia Beach. Until recently, viable populations were found on the James City-York County peninsula, notably in parts of Hampton and Newport News. Except for a few individuals that occasionally turn

The canebrake rattlesnake makes its home in only a few isolated areas of southeastern Virginia. In danger of becoming extinct in the state, is this reptile too threatening an animal for people to care about, or is it deserving of a closer look?

by Joseph C. Mitchell
& Don Schwab

photos by
Lynda Richardson

The canebrake rattlesnake was once widespread throughout eastern Virginia—today it occupies a tiny portion of its former habitat, and is threatened with extinction.



up, the population north of the James River is apparently very small and feared biologically extinct. Reports of rattlesnakes west of the Dismal Swamp occasionally surface, but few have been substantiated by a photograph or a specimen. East of the Dismal Swamp, the canebrake occurs in scattered locations of hardwood forests on high ground. Here, too, the numbers are small. Current and future habitat loss will eliminate all but four or five locations for canebrake rattlesnakes in southeastern Virginia before the year 2000.

Why the drastic difference in the abundance and distribution of the canebrake between the Colonial era and today? One obvious answer is that the colonists wiped out most populations by direct killing when they cleared the land for agriculture, notably for tobacco and pig farming, and for the timber industry. The populations that remained were able to survive because there was enough appropriate habitat left scattered among the fields and clearcuts, and because some of these places were difficult to farm. Plus, some areas that were left to revert back to old growth forest were recolonized by canebrakes from nearby populations. Today, the habitat on these remnant locations, some used by hunt clubs, are being destroyed for highways and urban developments. The continued extinction of canebrake rattlesnake populations is a sign that signals an alteration of the Virginia landscape that ultimately affects all the plants and animals in the area. This alteration also affects us, particularly in regard to the quality of the environment in which we live.

But, why should we be concerned about the canebrake rattlesnake? After all, it is a venomous animal that can seriously harm, even kill, a human being. In reality, its threat to human

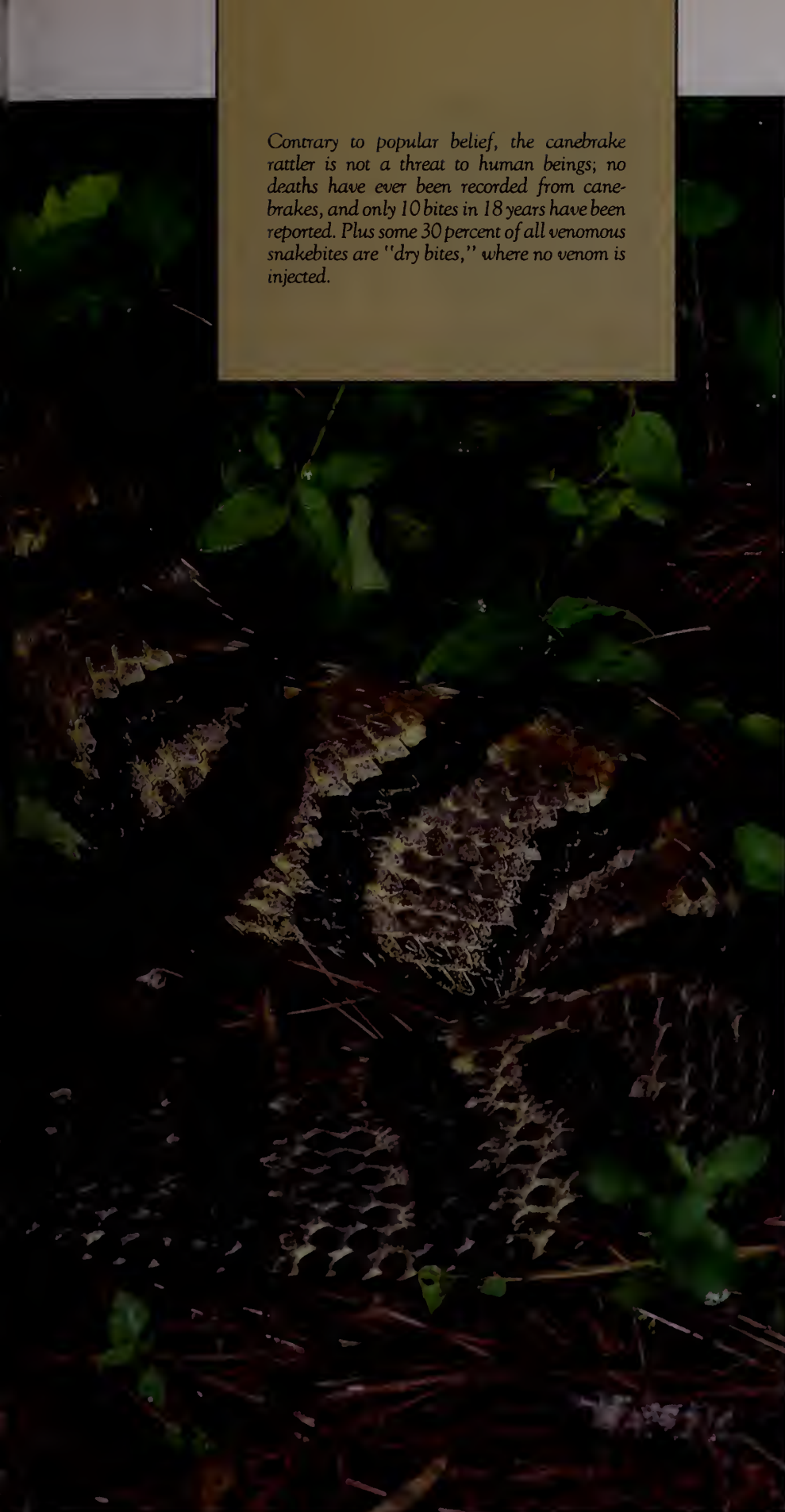
life is insignificant. No one has been recorded as dying from the bite of one of these snakes since Virginia's Bureau of Vital Statistics began accumulating death records. Dr. Sterling Williamson, who treats most of the snakebites in the Norfolk and Virginia Beach areas, reported that fewer than 10 canebrake bites occurred during 1971-1989.

Like most snakes, canebrakes are timid creatures. They will usually attempt to escape from humans under most circumstances, using their venom delivery for defense only if molested or cornered. Some 30 percent of venomous snakebites are so-called dry bites, where no venom is injected. Plus, with the availability of medical care, more people die from bee stings and lightning strikes each year than from venomous snakebites.

There are ecological and ethical reasons for protecting the canebrake rattlesnake in Virginia. This species plays a vital role in the functioning of the forest ecosystem in which it resides. As a predator of small mammals, the snake is an important link in the flow of energy that organizes and maintains the complex association of plants and animals. It plays a role in the natural regulation of small mammal populations. Furthermore, the canebrake rattlesnake is a species that links us with the historical wilds of pre-Colonial Virginia. It played a major role in the development of Virginia's early culture, and is surely as important to us historically as anything we see in Colonial Williamsburg. It is part of our link to the past.

What makes the canebrake rattlesnake, unlike snakes like the black rat snake or northern water snake, vulnerable to extinction? Canebrakes are tertiary predators. This means that they feed on squirrels and other mammals that, in turn, feed on the products of primary producers, plants. Only about 10 percent of the energy is passed on from one producer to its consumer at each level of the food chain. At best, therefore, the canebrake gets one percent of the energy fixed by the plants in its ecosystem for use in growth and reproduction. This has dramatic con-



A photograph of a canebrake rattlesnake (Crotalus cerastes) in its natural habitat. The snake is coiled on the ground, surrounded by dense, low-lying vegetation and dry leaves. Its body is covered in a pattern of dark, diamond-shaped blotches on a lighter background. The snake's head is visible, showing its characteristic small size and the dark, narrow stripes running from its eyes down its body. The background is a soft-focus view of the surrounding forest floor.

Contrary to popular belief, the canebrake rattler is not a threat to human beings; no deaths have ever been recorded from canebrakes, and only 10 bites in 18 years have been reported. Plus some 30 percent of all venomous snakebites are "dry bites," where no venom is injected.

sequences on the numbers of individuals that can be supported in this ecosystem. Thus, canebrake populations are characterized by their small size. Tied to this constraint is their long life, low reproductive output (about 7 babies every 2-4 years), and lower juvenile survivorship rate. Canebrake populations stressed by habitat loss find less to eat and find it difficult, if not impossible, to bounce back once the stress is eliminated. Black rat snakes and northern water snakes, on the other hand, have higher reproductive rates and occupy a wider variety of habitats.

In southeastern Virginia, canebrake rattlesnakes are restricted to mature oak forests on high swampy ground. Most encounters between humans and canebrakes occur with deer hunters who usually see this snake while it is crossing the road or sunning itself there. Some deer clubs have been hunting in the same areas for over 35 years and have been killing the snakes they encounter at a rate of six to 12 per year. Despite this loss, canebrake populations have persisted. Because hunting in southeastern Virginia is done primarily with dogs (because of the thick vegetation and wetlands), with hunters shooting from designated stands at the edges of these areas, few people, with the exception of some biologists and herpetologists, have ventured into prime canebrake habitat. So until recently, with the lack of encroachment by people into canebrake country, an informal means of protection has been provided the species. No so any longer. We must add the bulldozer and the developer to the list of intruders.

The areas that were once good habitat for the canebrake and many other wildlife species are gone or going. The outstanding reason for this loss is the development of the remaining high ground for houses and shopping centers. Continued urbanization in southeastern Virginia will cause wildlife habitats to be fragmented, isolated, and reduced in size. The four or five remaining areas with sufficient habitat to maintain canebrake populations will be islands in a sea of urbanization. No longer will the animals and plants be



The canebrake rattlesnake in Virginia is in trouble. With human pressure on its populations through habitat destruction and unprovoked malice, we may experience its loss to our state soon—especially if we don't take immediate steps to protect it.

able to exchange genes among populations. These small, isolated canebrake populations with their reduced genetic variability will be unable to withstand the problems of genetic drift and inbreeding. Plus, a serious drought affecting the acorn crop, for example, that consequently reduces small mammal populations, could cause the canebrake population to crash. The killing of just a few of the older reproducing adults could also cause a reduction in the population's reproductive output and increase their vulnerability to genetic and environmental problems. We could go on, but you get the picture.

What can we do to protect the canebrake rattlesnake and those plants and animals that share its habitat in southeastern Virginia from extinction? Because land needs are very high in this part of the state, the issues are complex. We suggest first to support its listing as a state endangered species. Land use changes taking place will cause the canebrake to be the second most endangered reptile in Virginia. Only the chicken turtle, known from only one location in the state, is more vulnerable. Secondly, we can educate the public and those people likely to encounter these animals on their importance and role in Virginia's history and ecology. Third, we can work with developers and city and county planners to set aside some of the prime canebrake habitat for natural areas. And finally, we can maintain a vigilance in southeastern Virginia that alerts the experts and regulatory authorities to additional erosion of Virginia's natural diversity.

The loss of the canebrake rattlesnake would mean that a piece of Virginia's history and a part of her future is gone forever. Do you want to read to your grandchildren about the canebrake, its habitat, and all they represent in history books, or do you want to be able to say that part of our history still lives with us? □

*Joseph Mitchell is a herpetologist and senior author of the soon-to-be-published *Amphibians and Reptiles of Virginia*. Don Schwab is a wildlife biologist with the Department's Wildlife Division.*

September Journal

Association of Virginia Field Trial Clubs

1989 Fall Schedule

Blackstone Field Trial Club, September 16, 17, Amelia WMA

Rappahannock Field Trial Club, September 23, 24, Phelps WMA

Central Virginia Field Trial Club, October 7, 8, Amelia WMA

Cockade Field Trial Club, October 14, 15, Amelia WMA

Virginia Capital Field Trial Club, October 21, 22, Amelia WMA

Tidewater Field Trial Club, October 28, 29, 31, Elm Hill WMA

Northern Virginia Field Trial Club, November 4, 5, Phelps WMA

National Capital Field Trial Club, November 11, 12, Rosaryville, MD

Southern Virginia Field Trial Club, November 18, 19, Elm Hill WMA

For further information, contact C. Rodgers Huff, Secretary-Treasurer, 103 W. Kingswood Drive, Williamsburg, VA 23185. Phone: 804/229-2255 □

Write Us!

Virginia Wildlife would like to hear from you. We want to know what kind of wildlife and fisheries articles you would like to read, and what kind of information you'd like your Department of Game and Inland Fisheries to give you each month in the magazine. Remember, we're here for you, the sportsman and all other lovers of Virginia's natural heritage of fish and wildlife. So let us know what we can do to please you and make your magazine even better. Write: Editor, *Virginia Wildlife*, P.O. Box 11104, Richmond, VA 23230-1104. Thanks! □

Letters

More On Nongame

The articles in the July issue of *Virginia Wildlife* on the pileated woodpecker and the Peaks of Otter salamander were excellent. Articles like these point out the importance of protecting our various ecosystems from unwise development and pollution.

More articles like these on nongame species would be very welcome.

George Harris
Virginia Beach

When Nightshades Are Drawn

by William Antozzi, Boating Safety Officer

Night cruising can be fun because it is so different. A boat out on the water at night is often in calm conditions because the thermal winds generated during the day have ceased and the surface may be calm and even glassy, reflecting shore lights, other boat lights, and a full hemisphere of heavenly bodies. The surroundings are relatively quiet and boat occupants tend to speak at much reduced volume. Reduced speed is usually necessary and motor sounds are diminished.

Night boating is safer if the boaters, especially the captain and helmsman, have been in the area during daylight. There are less surprises that way and hazards are reduced. Familiar landmarks disappear, the world seems to close in around the boat and many lights are meaningless to amateur boatmen. Consequently, it is relatively easy to get disoriented and lost. Channel lights are standardized, and if boatmen understand the system, a vessel can follow a channel. Channel lights can be confused with other channel lights and the vessel's position can be far from the spot where it is thought to be. The possibility of getting mixed up is even worse when approaching urban

areas or other brightly lighted areas. Navigation buoys are sometimes obscured by those lights and it is often difficult to differentiate between a red flashing buoy light and a hundred shoreside automobile taillights. By the same token, range lights and white mid-channel lights may be lost among the myriad shore front street lights and illuminated hotels, homes, and condominiums.

All recreational vessels underway between sunset and sunrise are required to use red and green bow lights plus appropriate white lights. Depending on the size, use and conformation of vessels, there are various lighting systems with which boaters should be familiar. Many channel markers are not lighted, but all have reflective markings which show up when a spotlight is employed.

The lighting system to mark channels is uniform. Red and green flashing lights are found on channel borders. Red lights are kept on the starboard side and green ones on the port side when going upstream from seaward. Mid-channel buoys flash white light providing the short-long signal of the Morse Code letter "A." Preferred channel buoys use green or red lights and are kept to port or starboard, the same as the light marking channel borders. It can be very scary and hazardous to be out in a river channel at night and realize a tug with a string of barges or a huge merchantman is bearing down upon a small boat. The small boat operator must know the channel boundaries to get quickly and safely out of the way.

Spotlights are essential at night, but cruising with a strong spotlight constantly in use takes away a lot of the romance of night operation. Too much spotlight use causes reduction in night-vision efficiency. All lights aboard, except running lights, should be kept dim and to a minimum.

Night boating will always be more hazardous than daylight boating, but it can be fun if the captain and crew are thoroughly familiar with the area. □

Asters

Fall colors: red, orange, brown, and lavender.

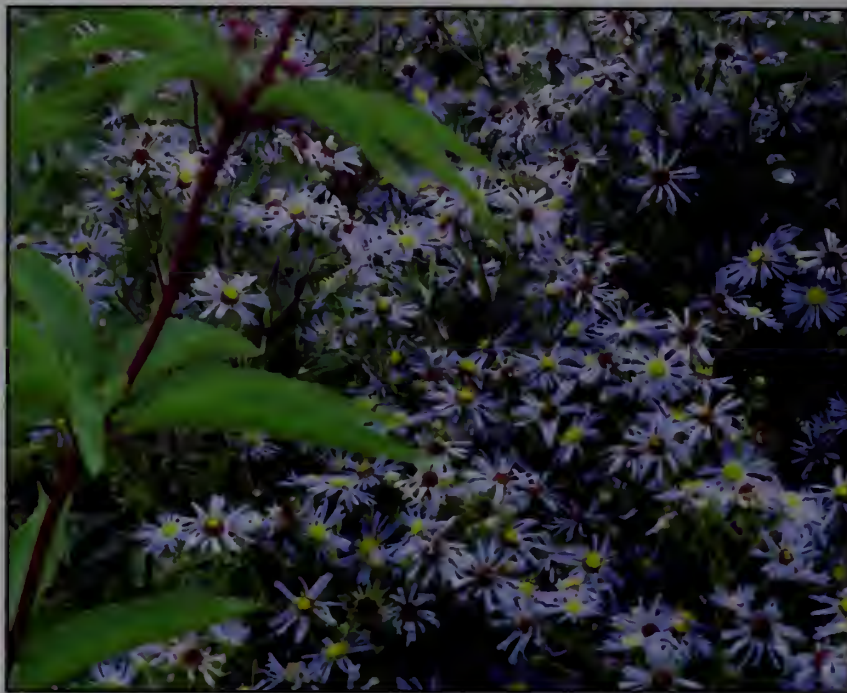
Lavender?

Haven't you seen it? There is a wild lavender aster that is as much a part of fall as any red maple. When it blooms along our forest road, I wonder how I ever pictured fall without it because the colors of the turning leaves wouldn't seem half so warm or the autumn light half so golden, without the cool colors of the asters blooming with them.

Maybe it's because the flashy goldenrods bloom at the same time that we tend to dismiss the asters as "late daisies" or "dog-daisies" and give them no more attention than that, but asters deserve a closer look.

According to the *Atlas of Virginia Flora*, there are 38 species of asters in Virginia and 37 of them are native. From low foot-tall asters in open woods to towering six foot asters in sunny meadows, the asters are a complex group of wildflowers that are often hard to identify because some of them interbreed. They bloom in late summer and fall when lots of other wildflowers that belong to the same family, the Composites, bloom. Composites—like asters, yarrow, goldenrod, and groundsel—have small flowers arranged into larger heads (or compositions) that look like a single flower. They are particularly beloved by insects because their pollen and nectar are within easy reach, and they often stretch the nectaring season because they bloom so late.

The name aster comes from the Greek word for star, because the blooms resemble stars. What we would call the center of each star, botanists call "disk flowers" and these are usually yellow, often changing to red or purple. What we would call the aster's petals, botanists refer to as ray flowers, and these are usually shades of white, blue, pink or purple.



Red-stemmed aster (*A. puniceus*); photo by Rob Simpson.

One of my favorite asters has flowers of different colors blooming on the same plant at the same time. It's appropriately called the Calico aster (*Aster lateriflorus*), and its ray flowers (petals) can be either white or pale purple. At the center of these flowers (the petals) are the disk flowers that start out yellow then change to purplish red as they mature, so that the blossoms in a single cluster may be different combinations of colors at the same time.

Another aster to watch for is a late white one that may be *Aster pilosus*, but its botanical name isn't important. What is important is that you single out one late white aster and give it the common name Farewell Summer. Not only is this one of the most beautiful flower names around, but once you've adopted it, summer will never leave you again without this floral tribute to its passing.

Asters are particularly valuable in

the butterfly garden. Not only do butterflies find nectar at the flowers, but plants provide larval food for butterfly caterpillars as well. I'm told the larva of the Pearl Crescent butterfly depends exclusively on asters for food.

Growing asters in the garden is easy. Try a dramatic one like the native New England aster which grows to six feet and has flowers that range from pink to rosy lilac and purple. Give it full sun (or at least 6 hours of direct sunlight) and average soil. Plants are easy to grow from seed, or you can purchase the perennial plants from a nursery. Virginia Natives at Wildside Farm (P.O. Box 18, Hume, Virginia 22639) offers a wide variety of asters native to Virginia. Once you have a mature plant, you can divide it into more plants by sectioning off the parent clump in the spring. You're also likely to have new plants popping up all over the place where the seeds of the parent plant have fallen. □

Recipes

by Joan Cone

A Squirrel Company Dinner

by Joan Cone

Squirrels are one of the most popular game animals in Virginia, and they should never be wasted. The meat is firm and mild and tastes very much like the dark meat of turkey.

To insure that squirrels reach the cook in first-rate condition, you should do the following:

1. Clean out all blood and clots under running water.
2. Cut squirrels into halves crosswise between the end of the loin and the beginning of the rib cage.
3. Dry pieces on paper toweling before freezing.
4. Wrap in heavy duty plastic wrap and place in heavy duty freezer bags. Be sure jagged ends of bone do not puncture the plastic wrap and bags.

Menu:

Company Squirrel Bake
Broiled Okra
Comb of the Rooster Salad
Corn Muffins
Sliced Apple Cake

Company Squirrel Bake

Squirrels can be cooked in a pressure cooker by adding 1 cup water and then cooking under 15 pounds of pressure for 20 to 25 minutes. Remove meat from bones and use in this recipe.

- 3 cups diced, cooked squirrel meat
- 1 package (8 ozs) egg noodles
- 1 package (8 ozs) cream cheese, softened
- 1 cup cream-style cottage cheese
- 1/3 cup sliced pimento-stuffed olives
- 1/2 teaspoon onion powder
- 1/4 cup minced parsley
- 1 can (10 3/4 ozs) cream of mushroom soup, undiluted
- 2/3 cup milk
- 1 teaspoon salt
- 1/2 teaspoon poultry seasoning
- 1 1/2 cups soft bread crumbs
- 3 tablespoons butter, melted

Cook noodles according to package; drain. Place half of noodles in a greased 12 x 8 x 2-inch baking dish.



Combine cream cheese and cottage cheese; mix 2 or 3 minutes with electric mixer or place in processor for a few seconds. Stir in olives, onion powder and parsley. Spread half of cheese mixture over noodles. Place half of squirrel meat over cheese mixture. Combine soup, milk, salt and poultry seasoning; mix well. Spread half of soup mixture over meat. Repeat layers. Combine bread crumbs and butter and spread evenly over top of casserole. Bake in a 375 degree oven for 30 minutes or until hot throughout. Serves 6 to 8.

Broiled Okra

Split tender okra lengthwise and place on a cookie sheet, cut side up. Sprinkle okra with vegetable oil. Salt and pepper or use seasoned salt of your choice. Broil until okra is brown and crispy.

Comb of the Rooster Salad

- 4 tomatoes, diced
- 2 large avocados, peeled and diced
- 2 cucumbers, peeled and diced
- 4 tablespoons olive or vegetable oil
- 4 tablespoons lime or lemon juice
- 1 teaspoon garlic salt

Combine tomatoes, avocados and cucumbers in a serving bowl and refrigerate until serving time. Combine remaining ingredients in a glass jar with tight-fitting lid; cover and shake. At serving time, pour dressing over salad, tossing lightly so as not to mash. Serves 8.

Corn Muffins

- 1 1/4 cups corn meal
- 3/4 cup sifted all-purpose flour
- 1/4 cup sugar
- 1 tablespoon baking powder
- 1/2 teaspoon salt
- 1 egg
- 1 cup milk
- 1/4 cup vegetable oil

Preheat oven to 425 degrees. Sift together corn meal, flour, sugar, baking powder and salt in a bowl. Add egg, milk and vegetable oil. Beat with rotary beater until smooth. This will take about 1 minute. Fill greased muffin cups 2/3 full. Bake 15 to 20 minutes. Makes 12 medium-size muffins.

Sliced Apple Cake

- 3 cups peeled and sliced apples
- 2 cups plus 5 tablespoons sugar
- 3 teaspoons cinnamon
- 3 cups flour
- 3 teaspoons baking powder
- 1 teaspoon salt
- 4 eggs
- 1 cup vegetable oil
- 1/4 cup orange juice
- 1 teaspoon vanilla

Preheat oven to 375 degrees. Grease and flour a 10-inch tube pan. Sprinkle 5 tablespoons of sugar and cinnamon over apples and set aside. Mix dry ingredients and add eggs, oil, orange juice and vanilla. Stir until well-mixed. Drain apples. Then place a layer of apples in bottom of cake pan and 1/3 of batter on top. Repeat this twice more ending with batter on top. Bake 1 1/4 hours. Let cool and turn out. This cake may be served with a topping of vanilla ice cream. Makes 16 to 20 servings.

September Journal

New Help for Small Game

by Jack W. Raybourne and Jerry P. Sims

In Virginia and throughout the South, quail populations have suffered declines in recent years. Wildlife biologists throughout the bobwhite's range agree that changes in land use has had an adverse effect on both the abundance and distribution of quail and other small game. Urbanization, growing rural communities, intensive agricultural practices, and the return of former open lands to forest have contributed to a decline in quail habitat and hunting opportunity.

The 1988 session of the General Assembly established the Joint Subcommittee to Study the Decline of Virginia's Bobwhite Quail. Their objective was to suggest measures to be undertaken by state agencies, organizations, and individuals to restore quail populations. The subcommittee was composed of five members: Delegate William T. Wilson (Chairman), Delegate R. Beasley Jones, Delegate Watkins T. Abbitt, Jr., Senator Kevin G. Miller (Vice-chairman), and Senator Robert E. Russell. A 20-member advisory committee comprised of individuals interested in the bobwhite was appointed to assist in the assessment. During the course of its study the subcommittee conducted three meetings. At these work sessions the subcommittee heard testimony from sportsmen, wildlife biologists, members of Quail Unlimited, corporate landowners, public officials, and others with concern for the well-being of quail. Information pertaining to past and present efforts to enhance quail populations was reviewed in detail in order to formulate recommendations for future programs.

The subcommittee identified several key elements to be included in any program designed to enhance small game habitat and populations. These elements included the expansion and maintenance of quail habitat, educa-



tion for the public and technical assistance for landowners. Also included were: coordination with federal and state agencies; the elimination of obstacles to public hunting access; and a continuation of research, surveys and inventories. The subcommittee also identified the costs associated with implementing a program to enhance small game.

The Department of Game and Inland Fisheries, with the assistance of Delegate Wilson's group, has already begun the implementation of an expanded small game program. The Department, in cooperation with other state agencies and private groups, has begun a program to improve the long-term decline in the quality and quantity of small game habitat on private and public lands throughout the Commonwealth. But, the Department cannot possibly do the job alone. Little success will be possible without the participation and cooperation of many private individuals, corporations, public agencies, and landowners.

With the subcommittee's assistance, two new wildlife biologists specializing in quail research and management have been hired and three more are to be hired for each of the Department's

five regions. These biologists will begin the task of addressing the many factors identified in the study. The Department plans to develop educational materials for enhancing small game habitat as well as increasing its technical assistance efforts to private landowners. It also plans to expand small game research efforts and to promote financial incentives for landowners to develop wildlife habitat.

Several of the Department's wildlife management areas are being developed as demonstration areas which will showcase a variety of wildlife management techniques. A series of habitat development workshops are being planned. Staff biologists and Quail Unlimited members are working with the Department of Transportation, the Department of Forestry, rural electric cooperatives, Virginia Power, and other utilities in order to improve wildlife habitat programs along rights-of-way and on private forest lands.

The protection and enhancement of habitat is the primary means of maintaining abundant populations of wildlife, be it small game, waterfowl or songbirds. Landowners wishing to become more actively involved may contact the Department's biologists for assistance. Individuals should join and support the activities of organizations such as Quail Unlimited, Ducks Unlimited, the Wild Turkey Federation and the Virginia Deerhunters Association. These groups provide invaluable assistance to the Department's habitat development and research activities.

Thanks to the leadership provided by Delegate Wilson and the subcommittee, Virginia's citizens have been able to join forces with industry and public agencies to seek ways to help small game. While changes in modern agricultural practices will make it difficult to return to "the good old days" entirely, there is much that can be done. By responding to the needs of small game, together we can help ensure that future Virginians will have "good old days" to enjoy. □

Fantastic Fall Flights

The cooling days of September bring many things. Goldenrod and black-eyed susans turn the fields and roadsides to yellow-gold. Sumac is showing tints of red. The first migrating birds begin to flood the flyways as a variety of species move night and day to their wintering grounds.

The amazing little ruby-throated hummingbird that is now sipping jewelweed nectar in a Wisconsin marsh will soon be in South America after having made a non-stop journey over the Gulf of Mexico. Virginia hummingbirds will finally depart in mid September, leaving a surplus of sugar water in residential feeders. Hummingbirds know when it's time to go, and artificial feeders do not deter them!

There are many other amazing migrational flights, such as the blue-winged teal to Ecuador; the scarlet tanager to Venezuela and the golden plover from the Arctic to Argentina. Yet, one of the most imagination-defying migrations in our natural world is not by a bird, but by the monarch butterfly.

How such a fragile appearing creature can battle gusty winds of autumn is amazing. In fall, great hordes of them migrate south just prior to freezing weather, although many of them remain until after the first frosts. I often wondered at the term "butterfly days" used so frequently by duck hunters. It can be attributed to those bright, clear days that the monarchs choose for migrating.

The monarch can be easily identified by its deep reddish-brown wings with black, vein-like markings and black, white-spotted edges. A similar species, the viceroy, is smaller and has different wing markings.

Each spring, millions of these delicate creatures fly 25,000 miles or more, returning from their recently discovered main wintering grounds in central Mexico, to their breeding grounds all over the Northern Hemisphere. It is a less hurried migration and not as noticeable as the fall flight. None of the migrating monarchs will



make the round trip. All of them will die enroute.

The first wave of females will seek out colonies of milkweed just before they die and lay their eggs. They may lay as many as 400 so the next generation is assured to carry on the flight northward as soon as they go through their cycle of growth into adult butterflies. This generation continues on as far as they can go and the cycle is repeated, a sort of migrational relay. Several generations of monarchs will end up making the northward flight to their final breeding grounds of the summer.

The final generation of female monarchs lays its tiny white eggs on the milkweed plant, on which the resultant large, greenish-yellow, zebra-striped larve feed. They eat so much that they grow out of and shed their skins a number of times. At the end of its growing period, the monarch builds a chrysalis out of its own body juices and bits of vegetation attached to a twig by a silken safety belt. It then undergoes an amazing change, actually dissolving and becoming a completely different creature.

In September, they take to the air and can be seen almost everywhere. Normally, monarchs fly at altitudes of only 15 feet, but in migration they'll utilize weather fronts to move south as quick as they can with as little effort as possible. They take advantage of thermals and often soar high in the air. I recall a day in the late 1940s, when I was a boy in Milwaukee, seeing hundreds of monarchs flying high in

the clear, blue September sky, hundreds of feet up.

Studies show that a monarch will cover 50 to 80 miles a day. Stopping to sip nectar nourishment from asters, black-eyed susans and other flowers during the day and clustering together in trees at night. These migrations often carry right into October and November and it is not uncommon to find monarchs gathered on the ground around water puddles, especially on colder, windier days. When temperatures drop below 50 degrees, monarchs have difficulty flying.

Where monarchs migrated to was once a mystery. It was known that many wintered at Pacific Grove, California but no one knew where the majority went. Dr. and Mrs. Fred Urquhart of the University of Toronto wondered for years, and they began tagging them in 1937. In 1952, they devised an effective tag—a tiny pressure sensitive adhesive label—that stuck to a butterfly's wing without hindering its flight. Each tag had Dr. Urquhart's name and address on them. In 1975, an American working in Mexico found a tagged monarch which ultimately led to the discovery of their wintering grounds in a volcanic mountain area around Mexico City.

Monarchs gather in swarms in the trees on the mountainsides in a semi-dormant state and "wait out" the winter, inactivated by the cool weather. If it were cooler, they might freeze, which happened one year when an estimated 2.5 million of them froze to death. If it gets too warm, they become too active burning up vital body fat needed for their beginning leg home. The right temperatures on their wintering grounds is very crucial.

No one is really sure how the monarch finds these wintering areas, but it is thought that it has some kind of homing device within its body. One thing is certain. Just about the time man uncovers one "secret," he usually opens the door to a handful of others. The mystery of the fantastic fall flights is just one of many. □

September Journal

Falcon Foothold

Eleven young peregrine falcons were produced in the wild this year from four nesting pairs which returned to nest in Virginia.

One pair, on the Moth Ball Fleet near Fort Eustis, produced four young. As a protective measure, two of the chicks were transferred to another pair which had laid infertile eggs.

Last year, the same pair had four young which succumbed to an avian virus caused by the over-abundance of wild pigeons in the area, according to Wildlife Biologist Karen Terwilliger. "We took two from the nest at the Moth Ball Fleet and transferred them to the nest of the pair on the Barrier Islands on Eastern Shore whose eggs didn't hatch," said Terwilliger.

Close observation revealed that the foster parents readily accepted the two transfers and they began immediately feeding and caring for them. "This lessened the risk factor for the two young at the Moth Ball Fleet, enabling the natural parent birds to adequately feed and care for them," said Terwilliger, "and the birds are about to fledge."

The Department of Game and Inland Fisheries, under the guidance of Dr. Mitchell Byrd of William and Mary, has also made three of a scheduled four releases of young peregrines in the southern Appalachians this year. Three were in the George Washington National Forest and one in the Shenandoah National Park.

Twelve chicks were placed in hacking towers and fed by hand until they fledged. According to Terwilliger they are all now flying. One more release is scheduled for fall.

The young peregrines are taking well to their traditional home. Hopefully, they'll return as adults to nest naturally and get a foothold in their native habitat, so that the mountain ridges of Virginia may again echo the piercing call of this swift, sleek falcon. □



In George Washington National Forest, biologist Rod McClanahan transfers a young peregrine falcon to a hack box where falcons will be fed and cared for until time for their release into the wild. The Department's Nongame and Endangered Species Program helped fund this project to reintroduce the falcon into the mountains of Virginia; photo by Roy Edwards.



